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THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
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U. S. Department of Agriculture

Vol. 14

Washington, D. C., January, 1933

No. 1

GENERAL NOTES

Heads Department Welfare Association.--Albert M. Day, of the Division of Predatory Animal and Rodent Control, was elected President of the Department of Agriculture Welfare Association on January 20, 1933, succeeding Robert M. Reese, former chief clerk and real-estate officer of the department, who was retired on July 1, 1932. William E. Taylor, Chief Clerk of the Bureau of Plant Industry, has been acting as president of the association since Mr. Reese's retirement. Mr. Day, who was formerly chairman of the bureau branch of the association, is succeeded in this position by Mrs. Margaret B. Leonard, of the Division of Game and Bird Conservation, who is in turn succeeded by Miss Myra G. Putnam, of the bird banding section of the Division of Biological Investigations.

Elected Chairman of Department Club.--The Denver Club of the United States Department of Agriculture on December 14 elected F. E. Garlough chairman for 1933. Mr. Garlough is in charge of the bureau's control-methods research laboratory in Denver.

Official Publications.--Mimeographed leaflets, for use in correspondence, have been received as follows:

"Parasites of Minks and Their Control," by Karl B. Hanson, Director, Fur Animal Experiment Station, Division of Fur Resources. Leaflet Bi-1235, 7 p., October, 1932. Received December 23.

"Some Fundamentals of Rabbit Breeding," by Chas. E. Kellogg, Biologist, Division of Fur Resources. Leaflet Bi-1243. 5 p., December, 1932. Received January 6.

ADMINISTRATION

Change Made in BS-FO Mailing List.--The mailing list for Biological Survey Field Offices (BS-FO) has been revised to provide for furnishing copies of memoranda to the principal assistants of field leaders as well as to the leaders. In a memorandum of January 19, Mr. Thompson informs that hereafter enough copies for this purpose will be mailed to those in charge of the field offices. Material sent to the field on other mailing lists, including BS-S (THE SURVEY) and 382 (The Official Record) will be handled as in the past. For distributing some material, including press releases, the BS-FO list also will be used as formerly, only one copy being sent to each leader.

Appropriation Bill Now Before Senate Committee.--The House of Representatives passed the Department of Agriculture appropriation bill for the fiscal year 1934 on December 30, and the bill is now before the Senate. The Biological Survey's appropriations for the fiscal year 1933, comparative figures for 1934, and deductions made by the Budget Bureau and by the House Committee on Appropriations are shown in the following tabulation:

Appropriation items	Appropriation for 1933	Bill for 1934 as passed by House	Deductions made from bureau estimates for 1934			
			By Budget	Bureau	By House Committee	Total deducted
			Furlough*	Other		
<u>Salaries and expenses:</u>						
Administrative.....	\$82,935	\$76,865	\$6,070	---	---	\$6,070
Maintenance of reservations.....	82,313	75,000	3,712	---	\$3,601	7,313
Food habits.....	104,810	75,000	6,323	\$4,810	18,677	29,810
Control.....	573,780	530,000	33,326	---	10,454	43,780
Fur resources.....	62,455	55,000	3,664	---	3,791	7,455
Biological investigations.....	102,500	85,000	6,713	2,500	8,287	17,500
Protection of migratory birds.....	214,240	198,190	11,810	4,240	---	16,050
Alaska game law.....	103,566	90,000	4,842	3,566	5,158	13,566
Total salaries and expenses.....	1,326,599	1,185,055	76,460	15,116	49,968	141,544
<u>Upper Mississippi River Refuge:</u>						
Administration.....	45,445	43,200	2,245	---	---	2,245
Land acquisition.....	34,033	18,500	1,055	14,478	---	15,533
<u>Migratory bird refuges:</u>						
Bear River.....	32,100	20,000	986	9,000	2,114	12,100
Cheyenne Bottoms.....	**	---	---	---	***	***
Others.....	318,000	89,525	5,700	118,000	104,775	228,475
Total.....	1,756,177	1,356,280	86,446	156,594	156,857	399,897

*During the fiscal year 1933 furlough deductions are being made currently and impounded in the Treasury, while for 1934 appropriations are being reduced by estimated amounts of furlough savings.

**Unexpended balance of appropriation of \$250,000 available for 1933.

***House Committee declined to recommend that unexpended balance of appropriation be made available for 1934, thus taking the position that purchase of the refuge lands should be deferred until the present financial stringency has passed.

BIOLOGICAL INVESTIGATIONS

Returns from Mexico.--Vernon Bailey returned to his Washington headquarters on January 25 after conducting a three months' biological expedition in northern Mexico. With Frederic Winthrop, jr., of the Museum of Comparative Zoology, at Cambridge, Mass., and Bernard Bailey, a collector from Escondido, Calif., he covered a section of country extending from the backbone of the Sierra Madres at 8,500 feet down to sea level on the Gulf of California, near Tiburon Island. This section included parts of all the life zones between the Canadian and Tropical, with the accompanying wide variation and complexity of plant and animal life. Besides making an excellent mammal and bird collection, which is to be divided between the Biological

Survey and the Museum of Comparative Zoology, the expedition gathered a wealth of valuable information on habits and distribution of species and on the limits of the life-zone areas of the region and their relation to those of the United States. Mr. Winthrop also made a side trip into the higher mountains of southern Chihuahua, where he obtained specimens of deer and other large game not found in the lower areas. Later it will be possible to make a more complete statement on the results of the expedition.

Visits Washington Office.--Dr. W. P. Taylor, senior biologist, stationed at the Southwestern Forest Experiment Station, Tucson, Ariz., was recently in the Washington office consulting the mammal files in connection with the preparation of reports on rabbits, porcupines, and other rodents of Arizona. He returned to Tucson on January 18.

On Detail in Washington.--T. D. Burleigh, associate biologist, stationed at the Appalachian Forest Experiment Station, in North Carolina, arrived in Washington on January 20, where he will be engaged for a time in the preparation of manuscripts, the progress of which will be facilitated by his having ready access to data in the bureau's files.

FOOD HABITS RESEARCH

Denver Laboratory Reports Number of Mammal Stomachs Studied.--During the year 1932 the Food Habits Research Laboratory in Denver received 4,260 mammal stomachs, including more than 3,600 of coyotes and 370 of wild cats. The laboratory reports that 636 of the 2,663 stomachs studied were empty and 535 contained only debris picked up by the animals while in traps. Valid data were thus collected of the contents of 1,492 stomachs, 1,379 of which were of coyotes.

Inspects Quail-Management Projects.--Ross O. Stevens left Washington on January 8 for Indianapolis, Ind., where he began a series of inspections of cooperative quail-management projects in several States.

Continues Studies of Eelgrass Shortage.--On January 5 Clarence Cottam left Washington to continue investigations of the eelgrass shortage in North Carolina and its relation to the welfare of waterfowl. He returned to headquarters on January 19.

Investigates Damage to Ornamental Plants.--In mid-December Theo. H. Scheffer investigated complaints of damage by birds to berry-bearing ornamental plants near Roseburg, Oreg. The berries had been frozen and were discolored; Mr. Scheffer believed, therefore, that the birds' damage is not serious, particularly as the birds do not usually arrive in numbers until after the end of the season for harvesting the berries.

Visits Bureau Offices.--Dr. A. K. Fisher visited former associates in various offices of the bureau on December 28. As he is no longer in the Biological Survey, Doctor Fisher wishes that correspondents address him at The Plymouth, 1236 Eleventh Street, NW., Washington, D. C., instead of at the bureau.

DISEASE INVESTIGATIONS

Addresses Veterinary Conference.--On January 12 Doctor Shillinger addressed the New York State Veterinary Conference at Cornell University, at Ithaca. He spoke on Diseases Affecting Wild Life, using lantern slides to depict various abnormalities encountered in his studies. At Pearl River, N. Y., on his return trip Doctor Shillinger conferred with the scientific staff of the Lederle Antitoxin Laboratory on immunizing animals against canine distemper.

FUR RESOURCES

Visits Fur Markets.--Mr. Ashbrook was in New York City from December 26 to 30, obtaining information on fur-market conditions, especially in regard to the demand for silver-fox pelts. It is estimated, he says, that the world production of these pelts for 1932-33 will approximate 250,000--more than the total of all other kinds of fox skins now being handled; but he reports that the market is unsteady and the demand uncertain.

Foxes and Minks Pelted at Fur Animal Station.--Dr. Karl B. Hanson reports that 12 red-, 14 cross-, and 16 silver-fox pelts and 6 of minks were taken this season at the Fur Animal Experiment Station. There now remain for breeding purposes 33 silver, 11 cross, and 3 red foxes, 20 martens, 4 fishers, and 11 minks. Experiments are in progress to obtain information on the daily feed consumption of foxes, fishers, and minks, and on the cost of feeding them.

Progress of Muskrat Studies on Eastern Shore.--F. R. Smith, agent at the Church Creek (Md.) field laboratory has made arrangements to procure muskrats from local trappers for use in the bureau's studies of this animal's prime-fur season and gestation period. Specimens will be taken every 20 days throughout the trapping season.

Breeding Does Rated for Efficiency.--John W. Myer reports that every breeding doe at the Rabbit Experiment Station, Fontana, Calif., has been scored on the breeding-efficiency score card recently devised in this division. The ratings provide a reliable basis for selecting the most desirable types.

Pink-eyed White Rex Produced.--The Rabbit Experiment Station's cross-breeding experiments to establish good meat qualities in a rex breed of rabbit have now progressed to the third generation and have resulted in the production of the first pink-eyed white rex young. These young are being matured for further study.

Slides Made for Studies of Rabbit Hair.--In cooperation with the University of California the Biological Survey has recently prepared more than 300 slides from specimens of skins of young rabbits of 16 ages, ranging from the 23d day of gestation to the 20th day after birth. The slides will be used in studies of the growth of rabbit hair.

PREDATORY ANIMAL AND RODENT CONTROL

Inspect Rodent-Control Work in Florida.--Mr. Young and James Silver spent 10 days during January in the Florida District with Leader Carlyle Carr. In the citrus and tomato section of the State they inspected the cooperative cotton-rat control work. Growers specializing in tomatoes, Mr. Young reports, are well pleased with what has been accomplished. During the past year cotton rats in one area caused thousands of dollars damage to tomatoes; the savings effected by the cooperative rodent-control campaigns are estimated at \$150,000. The inspection party also observed conditions in the heart of the Everglades, where cotton rats have damaged sugar-cane and also orange and grapefruit trees. Melon-seed depredations by white-footed mice, the officials found, have recently assumed considerable importance in some parts of central Florida. Local reports indicated that 8 to 10 white-footed mice will ruin all the melon seed planted on an acre. On January 13 Mr. Young spoke over the radio on Wild-Life Control and Conservation by the Bureau of Biological Survey. His talk was broadcast by the State radio station, WRUF, at the University of Florida, in Gainesville. Following Mr. Young, Mr. Silver spoke briefly on pocket-gopher control. At Gainesville, on January 13, Mr. Young also addressed the first annual convention of the newly formed Florida Wild Life League.

Organizes Pocket-Gopher Control to Safeguard Irrigation Canal.--Leader Louis Knowles, of the South Dakota-Nebraska district, reports that on August 1, 1932, pocket gophers burrowing into the bank of a main canal in western Nebraska caused a water shortage on 65,000 acres of farm land and a deep deposit of silt on an additional 100 acres. The break was repaired as quickly as possible--at a cost of \$13,000. The total damage was estimated at \$50,000. At the request of the water users Mr. Knowles later organized a small crew and carried on pocket-gopher control along about 85 miles of the ditch bank, at a cost of approximately \$1,000.

Rats Destroy Church Property.--Leader L. C. Whitehead, of the Texas district, reports that rats in a San Antonio church recently did \$300 damage to the organ by cutting the leather in the bellows, back, bushings, and hinges, and the felt washers back of the stops. They also gnawed books and costumes. Control was promptly undertaken.

Takes Destructive Bear.--Leader B. E. Foster, of the Arizona district, reports that in the Sierra Ancha Mountains Hunter Frank Colcord recently captured a bear that had been preying upon cattle and hogs for 7 years. It had killed nineteen 200-pound hogs since the middle of last summer.

Predators on Forests Kill Half a Million Animals in 5 Years.--The Forest Service has recently estimated that from 1927 to 1931 predators killed 505,693 game and domestic animals on the national forests--more than 100,000 animals a year. The estimate does not include cattle, horse, sheep, and goat losses from 1927 to 1929.

Notorious Gray Wolf Captured.--"Old Stub," the best-known gray wolf in Oklahoma, was recently taken in a trap by Hunter Frank Lee. "Old Stub" left a record of having killed about \$15,000 worth of poultry and stock. Trapped about 14 years ago, this wolf escaped with only the loss of its toes. Later it had been hunted with dogs and had been trapped for, but it seemed to lead a charmed life.

LAND ACQUISITION

Condemnation Proceedings Initiated.--The jury of view in the condemnation of lands within the Blackwater Migratory Bird Refuge, Md., having been selected, Benjamin Catchings, of the Solicitor's Office, with Mr. Dieffenbach and A. A. Riemer on January 5 accompanied the members to the refuge. The jury returned its findings on January 9, and it is expected that title to the lands will be vested in the United States within a short time.

Returns to Ogden.--Junior Forester Carey H. Bennett, who was detailed to the Washington office during November and December, has returned to his headquarters at Ogden, Utah.

Complete Survey of Mississippi River Refuge.--Albert Smith, jr., Oswald E. Recroft, Kenneth C. Kern, and J. Ralph Campbell have completed their survey on the Upper Mississippi River Wild Life and Fish Refuge and have returned to their official station at Washington.

To Survey Chinsegut Hill Refuge.--Charles S. Cook left his official station, Kansas City, Mo., January 16, for the Chinsegut Hill Migratory Bird Refuge, Fla., to survey the refuge and post the boundaries.

Detailed to Disease Investigations.--Junior Forester Daniel H. Janzen has been detailed for six months to the disease-investigation project at Minneapolis, Minn.

GAME AND BIRD CONSERVATION

Returns to Headquarters.--Mr. Sheldon returned to Washington on January 17 after two months in the field, observing migratory-bird conditions and conferring with Survey employees, State game officials, and others in the Northern, Western, Southwestern, and Mississippi Valley States. He inspected the Tule Lake Bird Reservation in California and Oregon, Lake Malheur Bird Reservation in Oregon, and Bear River Migratory Bird Refuge in Utah, as well as several State game refuges in California.

Returns to Duty after Operation.--J. S. Kelsey, United States game protector stationed at Daytona Beach, Fla., visited the Washington offices of the bureau on January 16. With Mrs. Kelsey he was en route home from Sayre, Pa., where he had undergone a thyroidectomy.

Rescue Icebound Birds.--Hugh M. Worcester, reservation protector at Upper Klamath Wild Life Refuge, Oreg., in the middle of December learned that approximately 3,000 ruddy ducks and about 500 horned and eared grebes had been icebound in Klamath Lake apparently about two days. The ice under many of the birds had melted until only their bills were visible above the surface. Protector Worcester and about 25 volunteer helpers spent two days in efforts to rescue the birds, and as a result saved 1,200 ruddy ducks, about 100 horned and eared grebes, 1 female mallard, and 1 spoonbill drake. The birds were transported to pens at refuge headquarters for recovery. Dead birds taken from the ice were turned over to charitable organizations. To assist in the rescue work, the owner of a local radio station cooperated by hiring four men and the manager of a motor company donated a 2-ton truck, with a driver, to haul crates containing the birds.

Says Refuge at Dawn Sounds Like Vast Duck Ranch.--In a recent weekly report of his activities Harold F. West, acting supervisor in charge of the Cape Romain Migratory Bird Refuge, S. C., makes the following interesting observation: "On a quiet morning just at daybreak the reservation sounds like a vast duck ranch. One can hear the quacking of innumerable ducks resting in the small creeks. The sound carries a great distance. For miles along the smaller creeks one can see where the very soft mud banks have been trampled and tracked by the vast number of ducks. This really must be seen to be appreciated."

Record Flight of Ducks Seen over Cape Romain Refuge.--Andrew H. Dupre, deputy reservation protector of the Cape Romain Refuge, reports that on December 5, just at sundown, he noted a vast flight of ducks traveling in a northerly direction and passing directly over his house. He observed the birds for more than an hour and a half and after dark could still hear the whir of many wings. He estimates that more than 10,000 passed over before dark. The number afterwards was beyond computing. Mr. Dupre has lived most of his life in the vicinity of Cape Romain and says that beyond doubt there were far more ducks in this one flight than he has ever previously seen in this locality at any one time.

Begin Winter Feeding on Elk Refuge.--The feeding of the elk at the Elk Refuge, Wyo., began on January 6. About 3,500 elk were then on the two feeding grounds. Feeding is begun whenever necessary for the protection of ranchers' haystacks or for the welfare of the elk. Last year also it began early in January, but in the preceding year not until late in February. In 1930 no feeding was carried on, although in 1929 conditions had made it necessary to begin feeding in February.

Appointed Caretaker at Sheldon Refuge.--Ernest J. Greenwalt has been appointed agent and United States deputy game warden to take care of the Charles Sheldon Wild Life Refuge, Nev. Cooperative funds making this service possible are provided through the Nevada Audubon Society.

Observes Mourning Doves in Eastern Washington.--On January 15 United States Deputy Game Warden Joseph O. Drolet, of Yakima, Wash., observed a flock of 75 mourning doves in Yakima County, and on the following day he saw 30 more. In reporting this observation, Game Protector Webster H. Ransom calls attention to the fact that only rarely is a mourning dove seen during winter in Washington east of the Cascade Mountains. Mr. Drolet also reported that large numbers of short-eared owls had recently appeared in Yakima County.

High Waters at Big Lake.--Probably the heaviest rainfall in three years at Big Lake Bird Reservation, Ark., occurred on December 30. Protector Stephen B. Crossley says that there was a 2-foot rise in the water level. He estimates that about 2,000 ducks were on the refuge at the end of December, although the water was too high to afford good feeding. In November there were approximately 28,500 ducks on this area.

Buffalo Drowned at Niobrara Reservation.--On January 2 on the Niobrara Reservation, Nebr., 26 buffalo were drowned by breaking through the ice when they were attempting to cross the Niobrara River in the new south pasture. This is the first season that the buffalo have wintered in this pasture, and Protector Geno A. Amundson believes that the animals felt no fear of the river because they had been accustomed to crossing over ice in creek bottoms in their old pasture. Although the ice on the river in some places was sufficiently thick to support the animals, they unfortunately selected a crossing place near an open channel.

Grouse and Pheasants Abundant at Sullys Hill.--Many grouse and pheasants have been feeding this winter on Sullys Hill Game Preserve, N. Dak., more than have been noted there in a number of years. Grain is put out for them when needed.

During the calendar year 1932, 14,237 persons with 2,569 automobiles visited the preserve.

Fire Hazard Serious on Mississippi River Refuge.--The problem of the fire hazard on the Upper Mississippi River Wild Life and Fish Refuge became extremely serious late in November and has continued, four fires occurring on New Year's Day. During Thanksgiving week, Superintendent Ray C. Steele reports, fires broke out almost simultaneously at various points throughout practically the entire 300-mile length of the refuge. A rank growth of various kinds provided excellent cover and food for pheasants, quail, and other species of upland game that winter in the area, but, killed by repeated frosts, it was so thoroughly dry that once ignited it burned violently. The entire refuge organization became a fire-fighting unit, and this was supplemented by a vigilant detection force of about 60 cooperative fire wardens, serving without pay and stationed at strategic points, to make reports by telephone or telegraph. Fire-fighting operations were handicapped by freezing temperatures, which in many instances prevented the use of hand pumps, usually the most effective weapon in combating fires. In addition, the lakes, ponds, and most of the sloughs were frozen over, thus practically shutting off the supply of water when pumps could be used, while the main channel of the river filled with floating ice rendered navigation hazardous or impossible. Back-firing, however, proved somewhat effective, and many times the personnel put in long hours of work. On one occasion Superintendent Steele worked continuously for more than 36 hours supervising operations over a 150-mile area. Unstinted praise is due the force of volunteers,

who, on Thanksgiving night, under the leadership of Clarence Cassutt, a cooperative fire warden, crossed the ice-choked river in row boats and effectively combated a fire that had broken out in the refuge opposite Guttenberg, Iowa. Their prompt action saved a large timbered area.

Wardens Arrest 3 Swan Killers.--Three residents of Havre de Grace, Md., were arrested early in January for shooting seven whistling swans at night on the Susquehanna River, near the head of Chesapeake Bay. United States Deputy Game Wardens John T. Capps and E. R. Updegrove, made the arrests. Updegrove was also serving as a Maryland Deputy Game Warden. The Biological Survey and the State Game Department of Maryland cooperate in the enforcement of laws protecting migratory game birds in the Susquehanna River area, one of America's finest hunting grounds for wild ducks and geese. "Most sportsmen and nature lovers lend every possible assistance in the protection of whistling swans, whose numbers are greatly reduced over former years, and bitterly resent the killing of these large, beautiful birds," said Mr. Redington, in commenting on the arrests. The three hunters will be prosecuted in Federal Court in Baltimore. The seized birds, weighing from 14 to 20 pounds each, were turned over to Walter Reed Hospital in Washington for use as food.

Prepare for Winter Feeding.--On the Upper Mississippi River Refuge preparations have been made to have winter feeding stations in readiness in case of emergency. Some feeding is already being done, although by the middle of January there had been little snow.

Appointed.--Frank C. Sloane, of McGregor, Iowa, has been appointed a deputy reservation ranger on the Upper Mississippi River Refuge.

To Post Areas.--Lynn H. Despard, Paul S. Despard, Vincent G. Spinner, Earl W. Butler, James L. Williams, and Frank R. Rost have been temporarily employed on the Upper Mississippi River Refuge to post the areas recently surveyed in connection with land-acquisition activities. It is hoped that the work can be completed while weather conditions are favorable and before the survey lines become obscured by vegetation.

Find Six New Beaver Colonies.--Beavers on the Upper Mississippi River Refuge established six new colonies opposite Wabasha, Minn., last fall, a recent check-up shows. Introduced about four years ago, the beavers have increased in numbers until now they are spreading to near-by privately owned areas, especially up the valley of the Chippewa River. By damming one of the main sloughs in this part of the refuge, the beavers have raised the water level over an extensive area, thus benefiting the muskrats too.

Two Dams Being Constructed in Upper Mississippi.--In furtherance of the plan approved by Congress for canalization of the Upper Mississippi River, contracts were recently awarded by the War Department for the construction of two dams, one at Alma, Wis., and the other near Fountain City, Wis. Work on the Alma dam has started, and it is expected that the one near Fountain City will soon be under

way. These two dams, with the 20 or so others proposed for construction along the river within the limits of the refuge, will create slack water pools inundating at more or less shallow depths considerable portions of the refuge.

Speaks at Izaak Walton Meetings.--Ray C. Steele addressed the annual convention of the Wisconsin Division of the Izaak Walton League, held at Sheboygan, Wis., November 17 to 18. On December 8 Mr. Steele also spoke before the Minnesota Division's tenth annual convention, at Minneapolis.

Nine Game-law Violators Apprehended.--Nine persons were apprehended in November for violations of the game laws on the Upper Mississippi River Refuge. Of four who were charged with hunting without license, one was fined \$50 and costs; two were fined \$50 each, the sentences being suspended and the defendants paroled, in the custody of Ranger H. C. Lawrence, for one year; the fourth, owing to his youth, was dismissed with a reprimand. For spearing muskrats, one defendant, arraigned in State Court, in default of payment of the fine imposed, was sentenced to 30 days in jail. Four cases involving raccoon hunting will be prosecuted in Federal Court. In addition, three previous cases of game-law violations were terminated in Federal Court, two with fines of \$1 and \$10, and the third with a 90-day jail sentence this being suspended and the defendant paroled, in the custody of Ranger H. F. Hall, for three years. A resident of La Crosse, Wis., apprehended on January 7 by Deputy Ranger J. G. H. Frerichs for trapping for mink on a closed area of the refuge, resisted arrest, threatening Ranger Frerichs with an ax; he was later taken into custody, however, and in a hearing before a United States Commissioner, at Winona, was bound over for the next term of Federal Court, bail being fixed at \$1,000. Unable to furnish bail, he was committed to jail.

Birds Imported for Holiday Trade.--Several large shipments of foreign birds intended for the holiday trade were imported into the United States during December. The largest single shipment, entered on December 19, contained 6,000 birds. The largest number entered in one day was 14,149 on December 17.

20,000 Permits Issued Under Lacey Act.--Importation Permit No. 20,000 was issued on December 30. This means that since the passage of the Lacey Act on May 25, 1900, permits have been issued for the entry of 20,000 separate shipments of birds and mammals.

Resumes Inspection Duties at New York.--Lee S. Crandall, one of the inspectors of foreign birds and mammals at New York City, took over the work of inspection at that port on January 3, relieving B. S. Bowdish, who had been on duty for the past half year.

Arrangements for Quail Importation Begun.--Arrangements are now under way for the importation of quail from Mexico during the season that opens February 15. Export authorizations have been granted by the Mexican authorities to several concessionaires.

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No. 2

GENERAL NOTES

Chief and Alaska Officer in Philadelphia and New York.—Mr. Redington and Hugh Terhune, Executive Officer of the Alaska Game Commission, recently conferred in Philadelphia with Charles M. Cadwalader, managing director of the Philadelphia Academy of Natural Sciences, who is interested in the bear situation in Alaska. A party representing the academy, it is expected, will probably go to Alaska this year to collect specimens of mammals. Incidentally, says Mr. Redington, the museum groups of caribou, musk-oxen, and bears are excellent and are a great attraction to the thousands of people who visit the academy. After going on to New York, Mr. Redington and Mr. Terhune made contacts with several persons concerned with wild-life conservation, incidentally having an interesting talk with Captain Bob Bartlett, of polar fame, who would like to essay another trip into the northeastern Greenland country this year. The Chief and Mr. Terhune later spent three days with members of the Camp Fire Club at the home of John Burnham near Essex, N. Y., where an opportunity was presented to inform the club's conservation committee of the status of several projects of the Biological Survey, including the investigation made as to the bear population on Admiralty Island. Mr. Redington reports that those who heard Mr. Terhune's statements on bear protection were gratified that a sound program is being put into effect by the Alaska Game Commission, in cooperation with the Forest Service.

Comments on Appropriations.—Mr. Redington calls attention to the department's appropriation bill, which is dealt with further on page 12, of this SURVEY. Senator Norbeck, he points out, offered an amendment to obtain larger funds for the acquisition of migratory waterfowl refuges, but when the bill went to conference this item, which had been approved by the Senate, was dropped. It is hoped, says Mr. Redington, that as better times come the bureau may resume its activities in the needed acquisition of lands for the protection of waterfowl. He also expressed the hope that in the next few years more resources may be available to prosecute needed research work.

Bureau Displays Work at Sportsmen's Show.—An exhibit illustrating practically all the activities of the bureau was shown at the annual New England Sportsmen's and Motor Boat Show at Boston, Mass., February 4 to 11. The display included mounted specimens of song and shore birds, waterfowl, upland game, deer, buffalo, beaver, and other forms of wild life. Panels depicted the necessity of controlling species harmful to game, and lantern slides pictured the fur animals of North America, with maps giving their distribution. One of the outstanding features of the display was a set consisting of a small lake and a stream of water upon which floated live and mounted specimens of waterfowl, the backdrop portraying their characteristic habitat.

Lisle Morrison, who was in charge of the exhibit, reports that about 250,000 persons attended the show and a large number of them took a keen interest in the entire bureau exhibit.

ADMINISTRATION

Bureau Appropriations Same as Reported Last Month.--The Agricultural Appropriation Bill (H.R. 13872) as it passed the Senate on February 9, 1933, contained an increase in the sub-appropriation "Migratory Bird Conservation Refuges" of \$104,775 over the bill as it passed the House. This increase, however, was eliminated in conference between the House and the Senate, so that the bureau items as reported by the conferees remained the same as those appearing in the statement included in the January SURVEY. The bill was passed by Congress on February 28.

BIOLOGICAL INVESTIGATIONS

Observes Waterfowl at Austin Station.--On January 24 and 25 F. C. Lincoln observed waterfowl conditions at the O. L. Austin Ornithological Research Station, North Eastham, Mass. A considerable number of black ducks had concentrated there and were being fed at the banding traps. Near Chatham Mr. Lincoln saw a flock of more than 300 eider ducks with a few scoters. No damage to the scallop beds by eider ducks has been reported there this year.

Bird Banding Discussed at Meetings.--On January 26, Mr. Lincoln attended the annual meeting of the Northeastern Bird Banding Association and the Federation of Bird Clubs of New England, at Boston, Mass., and led a round-table discussion on Individual Problems of the Bird Bander. Dr. O. L. Austin, jr., who also appeared on the program, gave an account of his work at the Cape Cod station. About 200 persons were present. On February 11 Mr. Lincoln spoke before the Fifth Annual New England Game Conference, held at Boston, on Waterfowl Problems Revealed by Banding Operations. Mr. Lincoln discussed the loss of waterfowl due to shooting, and also the difficulty of restocking our waterfowl marshes with hand-reared mallards. Studies of data obtained by banding these birds show that few are subsequently recovered, indicating that there must be considerable loss from unknown causes.

Studies Waterfowl Conditions.--Dr. Harry C. Oberholser recently completed a three-months' survey of waterfowl conditions in northern Ohio, central and southern Illinois, eastern, western, and central Missouri, western Tennessee, eastern Arkansas, Louisiana, and Texas. He is now making a similar survey along the Atlantic coast from Chesapeake Bay to Georgia.

FOOD HABITS RESEARCH

Study Proposed State Refuge Site in Missouri.--Cooperating with local interests that propose to establish a wild-goose refuge on the shores of the Lake of the Ozarks, Mo., the bureau late in January made a study of the suitability of the area for the purpose. Observations were also made preparatory to recommending improvements of the lake's wild-fowl feeding resources. Francis M. Uhler, who conducted the investigations, returned to Washington on January 30.

To Study in Washington Laboratory.--J. Paul Miller arrived in Washington February 14 to carry on laboratory studies in connection with his field projects at Amherst, Mass.

DISEASE INVESTIGATIONS

Extend Studies in Game-Bird Diseases.--Doctor Shillinger was in Richmond, Va., January 22 to 24, conferring with Dr. L. C. Morley on plans for extending the studies on diseases of upland-game birds. In order to have an abundance of experimental material, Doctor Morley is developing at his home a small quail-breeding plant, which will afford him opportunity to make frequent observations of conditions night and day. He will incubate and brood quail by the approved electrical-heat methods in his back yard, far removed from any commercial game farm. He will thus be able to conduct experimental tests with diseases without jeopardizing valuable breeding stock on commercial or State game farms. The data will be a valuable addition to those obtained through laboratory studies and observations made on co-operating commercial game farms.

Two Collaborators Appointed.--Dr. Meade Ferguson, of the Virginia State Department of Agriculture and Immigration, was appointed a collaborator in disease investigations on January 15. Doctor Ferguson has received the degrees of Bachelor of Science and Master of Science from the Virginia Polytechnic Institute, and the degree of Doctor of Philosophy from the University of Gottingen, Germany. He is engaged in bacteriological investigations of animal and bird diseases and is well qualified to assist in furthering the work on infectious diseases of wild life.

Dr. P. P. Levine, of the New York State Conservation Department, was appointed a collaborator in disease investigations on February 1. Doctor Levine received his Bachelor of Science degree from the College of the City of New York, and degrees of Master of Science and Doctor of Veterinary Medicine from the New York State Veterinary College, at Cornell University. Now making his headquarters at the latter institution, he is engaged in studying diseases of wild life for the New York State Department of Conservation. Through his activities it will be possible to correlate the findings developed by the Biological Survey in various parts of the country with conditions encountered by him in his special studies in New York State.

Makes Survey of Disease Study Area.--Daniel Janzen, who has been temporarily transferred from the Division of Land Acquisition, has recently been surveying an area at Cushing, Minn., used in the study of the relation of wild-life populations to the spread of disease. His observations on the possible bearing of topography of certain land areas on the spread of diseases will doubtless yield data much needed in disease investigations.

FUR RESOURCES

Speaks at Rabbit Breeders Meeting.--At the Meeting of the Maryland Rabbit Breeders Association, in Baltimore on February 1, Mr. Ashbrook explained the work

of the bureau in developing the rabbit business. He made clear the position of the bureau with respect to fraudulent schemes, especially the "buy-back" system, and stressed the fact that rabbits are raised primarily for meat and fur, the raising of breeding stock being a secondary consideration. More than 200 persons were present.

Studies Fur Market.--Mr. Ashbrook, who was in New York City February 2 to 4 studying fur-marketing conditions, reports that the fur market is not registering any increased activity. This season's receipts of raw furs up to that time had been 40 to 60 per cent less than for the same period last year, the decline being attributed to a series of years of close trapping, droughts, floods, and low price levels. At the time of Mr. Ashbrook's visit, silver-fox pelts were in greatest demand, at an advance of 8 to 10 per cent over December and early January prices. A steady demand was developing for good grades of wolf. The better grades of badger skins were selling well, and a keen interest in mink was evidenced.

Seven Foxes Pelted During February.--Dr. Karl B. Hanson reports that 1 red-, 4 cross-, and 2 silver-fox pelts were taken during the early part of February at the Fur-Animal Experiment Station, Saratoga Springs, N. Y., bringing the total number of foxes pelted during the season 1932-33 to 48. Some of the best pelts were retained for the station collection to illustrate the cross-breeding work; the rest were sent to the raw-fur market.

Mating Seasons Earlier This Year.--The mating season for foxes, which generally occurs during February and March, began two to three weeks earlier than usual this year, reports Doctor Hanson. An earlier breeding season this year for muskrats has also been reported from different parts of the country.

Study Muskrat Skins.--Frank R. Smith, agent at the muskrat experiment station, Church Creek, Md., recently sent in 10 muskrat skins for grading and valuing in connection with a study to determine the best period for trapping. A raw-fur concern is cooperating with the bureau in this study.

Cooperates in Muskrat Investigations.--Peter J. Van Huizen, acting supervisor of the Blackwater Migratory Bird Refuge, Cambridge, Md., is cooperating with this division in its muskrat investigations to determine the productiveness of certain marsh areas. The muskrat houses on the refuge have been counted and located on a map of the area, which also indicates the territory covered by each trapper. The number of males, females, and females bearing young are recorded, as well as the number of black and brown pelts taken.

Summarizes Data on Rabbits.--Records of 1,450 eight-weeks old New Zealand rabbits indicate that the average weight at that age is about 2 1/2 pounds, whereas promoters have claimed 4 and 4 1/2 pounds, reports Chas. E. Kellogg, who has been engaged recently in summarizing data on the rabbit experimental work. In connection with his summary, Mr. Kellogg has also charted the effect of season of the year on does and young, the effect of size of litter on gains of young, and the loss of weight of does during the suckling period.

PREDATORY ANIMAL AND RODENT CONTROL

Investigate Crawfish Damage to Crops.--At the request of Mississippi State officials, F. E. Garlough, Don Spencer, and Roy Moore recently investigated the crawfish damage to crops in a section from which the greatest losses have been reported. They also conducted experiments to determine effective control measures. On an area of heavy but not uncommon infestation they marked off a plot of 100 square feet and counted the active crawfish burrows. From this count they estimated that the number of holes to the acre was 14,500. There is generally one crawfish to a burrow. So far as known these animals roam over the surface of the ground only on rainy nights, and if the cotton, corn, alfalfa, or other crops are short and tender, will keep them cut close to the ground. Damage occurs chiefly during rainy weather, but there are few years when it does not rain in Mississippi during the early growing season, and damage to corn sometimes amounts to from 30 to 50 per cent of the crop on affected areas. To legume crops the damage is even greater.

Cats Carry Typhus Fever.--It is commonly accepted by medical authorities that rats serve as a source of infection for typhus fever and that this disease may be transmitted to man by fleas, mites, and body lice that have fed upon the infected rats. According to Leader L. C. Whitehead, the city health office of Navasota, Tex., recently received reports indicating that cats also may carry the disease. Of a certain litter of kittens, one, the health authorities learned, was given to a nurse, who shortly afterward contracted typhus fever; two others were given to a family in the town, some members of which within a short time thereafter became ill with the disease; another of the litter was sent to a person in Long View, Tex., who soon afterward also became ill.

Rabies in Nevada and New Mexico.--Leader E. R. Sans, of the Nevada district, reports that a coyote killed in northern Elko County during December and examined by the State Hygienic Laboratory proved positive for rabies. Assistant Leader Fairchild was assigned to assist in controlling the outbreak of rabies in Paradise Valley, where several cattle have died from the disease. Leader J. C. Gatlin also has reported an outbreak of rabies in southern New Mexico and has sent hunters to that section to control predatory animals, which may serve as carriers.

R. F. C. Funds Used in Rodent Control.--Leader L. C. Whitehead, of the Texas district, reports that since November approximately \$13,300 of the Reconstruction Finance Corporation funds loaned to Texas counties have been expended in rodent control work, including campaigns against prairie dogs in the Panhandle section, against pocket gophers in the El Paso Water Improvement District, and against rats to prevent the further spread of typhus fever.

LAND ACQUISITION

Lands Acquired under Migratory Bird Conservation Act.--Between July 1, 1929, when the Migratory Bird Conservation Act became effective, and January 17, 1933, 275,382 acres of land were set aside by Executive order and Proclamation, and 152,130 acres were approved by the Migratory Bird Conservation Commission for acquisition

by purchase or lease. The annual report of the Migratory Bird Conservation Commission for the fiscal year 1932 has been printed as Senate Document No. 487, and is now available for distribution. This gives in some detail the accomplishments of the Biological Survey under the Migratory Bird Conservation Act.

Study Fire Damage on Refuge Lands.--Robert M. Rutherford and Albert J. Rissman have recently been engaged on a special investigation in connection with fires that have occurred within the past several years on lands in the Swanquarter Migratory Bird Refuge now in process of acquisition.

Large Tract Added to Blackwater Refuge.--For inclusion in the Blackwater Migratory Bird Refuge, Md., the Federal Government on January 24 acquired from the Delmarvia Fur Farms (Inc.) an 8,241-acre tract on the eastern shore of Maryland, about 10 miles from Cambridge. The acquisition had been under negotiation for some time.

Widows Island Made a Bird Refuge.--Widows Island, situated off the coast of Maine, has been transferred from the jurisdiction of the Secretary of the Navy to that of the Secretary of Agriculture for use as a migratory-bird refuge. Although it contains only 12 acres, the island will give protection to migratory birds that follow the Atlantic coast flyway. Eider ducks and herring gulls nest in the vicinity of the refuge, which is near the southern limit of their breeding range. Common terns also nest in the vicinity, and it is expected that black ducks may find sanctuary on the refuge. The game protector in charge of the regulatory work in Maine will use the island as a substation for operations.

GAME AND BIRD CONSERVATION

In Chicago.--Mr. Sheldon was in Chicago, Ill., several days during the early part of February in connection with the enforcement of regulations under the Migratory Bird Treaty Act.

Visits Washington Office.--Ray C. Steele, superintendent of the Upper Mississippi River Wild Life and Fish Refuge, Winona, Minn., was in the Washington office the week of February 12, conferring on matters connected with refuge administration.

Elk Transferred to Mount Rainier.--On January 17, 30 elk, including 8 bulls, were shipped by freight from the National Bison Range, Moiese, Mont., to the Pierce County Game Commission, Tacoma, Wash., for stocking purposes. They arrived at their destination in first-class condition and were liberated on Mount Rainier National Park in Pierce County, Wash.

Bison Range Animals Killed for Needy.--Fifty-two buffalo, 56 elk, and 7 mule deer, all surplus stock, have been killed at the Bison Range this winter and given to needy Indians of the Blackfeet and Flathead agencies.

Obtain Fire Wood at Sullys Hill.--Thirty-five 1-team loads of dry wood and five large loads on trucks were hauled from Sullys Hill Game Preserve, N. Dak., dur-

ing January for use of needy persons in the vicinity. This was dead and down timber that it was desirable to have removed from the preserve.

Bear River Superintendent Exonerated.--George E. Mushbach, superintendent of the Bear River (Utah) Migratory Bird Refuge, has been exonerated of charges made by a group of Utah sportsmen, the bureau announced in a press release on February 21, after conducting a thorough investigation: Mr. Mushbach's accusers charged that his management of the water on the refuge was a principal cause of the outbreak of duck sickness there in the fall of 1932; that he failed to cooperate with local sportsmen and with the State Fish and Game Department; and that on units of the refuge designated as public shooting-grounds he deliberately raised and lowered water levels in order to spoil the shooting. The bureau's investigation included examination of testimony presented at a meeting held by the Migratory Wildfowl Committee of the Utah State Sportsmen's Association December 15 at the State Capitol Building in Salt Lake City. Detailed study also was made of the records and correspondence having to do with Mr. Mushbach's administration of the refuge, and consideration was given to the testimony of many other persons who had expressed their interest and desire to be heard. The charges were not supported by the facts available for examination; Mr. Mushbach, the investigators found, has been conscientious, efficient, and industrious in the discharge of his duties.

Describes Bird Observations on Cape Romain.--A. S. Sprunt, jr., of the Charleston (S. C.) Museum, who with others made a tour of the Cape Romain Migratory Bird Refuge on January 16, describes in the Charleston News and Courier of January 28 a raft of 20,000 to 40,000 ducks observed in a section of open water and short marsh growth about Northeast Cape. "In the marshy estuaries nearby and outside the sand bars," he wrote, "in the ocean itself, many more bands and squadrons were seen resting on the water. . . . Various species were represented. Large numbers of mallards were present, more black ducks and a great many pintails. In the marsh were swarms of green-winged teal. They arose in thousands to wheel and dip in the most startling aerial evolutions. . . . The scaups were much less common than one would have expected in such a situation. . . . Some goldeneyes and buffleheads were seen throughout the day. The shorebirds were well represented by the oystercatchers. Those fine showy birds were present in flocks and the Cape Romain region is a favorite wintering ground. . . . The low country should be proud of this refuge--it is one of the finest on the Atlantic Coast." After making another tour of the refuge and taking a census of the birds, checking 42 varieties, Mr. Sprunt again wrote an account for the Charleston News and Courier, of February 4. "On a large mud flat exposed by the low tide at Northeast Cape were hundreds of shorebirds," he wrote, "and among them, towering over the lesser sandpipers, plover, and dowitchers, were three magnificent long-billed curlews! Time was when these splendid birds were known in the low country in large numbers. . . . Again we can rejoice that the refuge is there and that it is in such capable hands. The birds which frequent it are protected in every sense of the word, and coming seasons should make it one of the outstanding sanctuaries of the country." On the first tour Mr. Sprunt was in company with the Secretary of the National Association of Audubon Societies, two officials of the Charleston Museum, a

State deputy game warden, Acting Supervisor Harold F. West, and United States Deputy Reservation Protectors James F. Pittman and Andrew DuPre. He made his second tour with Mr. West and another ornithologist.

Game-Law Violation Cases Terminated.--At the January term of Federal Court at Winona, Minn., 10 cases involving game-law violations on the Upper Mississippi River Wild Life and Fish Refuge were disposed of as follows: For carrying firearms on the refuge two persons were fined \$20 each and a third, \$10; another was fined \$15 for hunting after sunset; trapping in closed areas on the refuge brought a fine of \$10 for one violator, a second was sentenced to 30 days in jail, and a third was sentenced to 6 months in jail, the sentence being suspended and the defendant placed on an 18-months' probation. Three cases involving hunting after sunset, which had been pending since the fall of 1930, were dismissed.

Fire Breaks Being Laid Out.--To provide further means for preventing the spread of fire on the Upper Mississippi River Refuge, two crews of men are cutting out fire breaks along the exterior boundaries of the more important refuge units. The lanes thus laid out clearly mark the boundaries of the refuge as well as reduce the danger of fires spreading from adjoining private lands.

Appointed Inspector.--Lawrence M. Huey, of the Natural History Museum, Balboa Park, San Diego, Calif., was appointed inspector of foreign birds and mammals at the port of San Diego, effective January 16.

Quail Importation Arrangements Completed.--All arrangements have been completed for the importation of quail from Mexico during the present season. Concessions have been granted by the Mexican authorities for the export of 243,000 of these birds.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
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HAIL AND FAREWELL: The Biological Survey extends greetings to our new Secretary, Henry A. Wallace, son of former Secretary Henry C. Wallace; and to the Assistant Secretary, Dr. Rexford G. Tugwell. On the afternoon of March 3, Mr. Redington and other bureau chiefs were introduced to the incoming Secretary, by Secretary Arthur M. Hyde, in the Administration Building. Biographical sketches of the Secretary and of the Assistant Secretary appear in the Official Record for March 11, 1933.

The following are excerpts from replies by the former Secretary and the former Assistant Secretary to letters sent them by Mr. Redington, on their departure with the change of administration:

From ex-Secretary Hyde: I am in receipt of your good letter of March 1st, and wish to thank you for your kindly sentiments. I certainly hope that somewhere again in the future our pathways may cross.

From the former Assistant Secretary, R. W. Dunlap: My greatest regret in leaving is that I shall be obliged to break pleasant relations with my friends of the Department. I leave the Department with a very high regard for its personnel . . . I do not believe there is another large body of men and women any place in the world who are more honest, more sincere, and more thoroughly concerned about their work and the welfare of those for whom they are working than the employees of this great Department. . . . It will not be possible for me to say farewell to all of the employees of the Department. However, if the opportunity presents itself I would appreciate it if you would convey my highest regards and best wishes to the folks in your Bureau. I sincerely hope that happiness and contentment will be with you always.

GENERAL NOTES

Assist in Publishing Memorial Book.--In the book recently published in connection with the memorial to the men of the Department who lost their lives in the World War, several members of the Biological Survey are mentioned as assisting in the work of providing for the memorial and publishing the book. Mr. Henderson

was chairman of the general committee and Emery J. Thompson, treasurer. Wm. H. Cheesman was a member of the committee on publication of the memorial, and Howard Zahniser helped in the editorial work. Emery J. Thompson (chairman), Dr. W. B. Bell, and George A. Lawyer are listed as the members of the committee for the Biological Survey who served when funds for the memorial were being raised. At the dedication of the memorial, on February 29, 1932, Maj. George A. Wold, of the Bureau, was in charge of the military features of the ceremonies. An account of the dedication and a description of the memorial appeared in the SURVEY for February 1932.

Official publications have been received as follows:

"Bird Allies of the Farmer--An Excerpt from 'Hearing before the Subcommittee of House Committee on Appropriations, in Charge of the Agricultural Department Appropriation Bill for 1932'." Reprint (revised) of pages 647 to 656--a list submitted by the Chief of the Bureau of Biological Survey on November 22, 1932. February 1933. Received March 14.

"Control of Magpies." Leaflet Bi-729 (revised). 4 pp. March 1933. Received March 7.

"Food of the Gray Fox." Leaflet Bi-1250. 1 p. January 1933. Received February 1.

"Food of the Red Fox." Leaflet Bi-1251. 1 p. January 1933. Received February 1.

ADMINISTRATION

New Economy Act Provisions Summarized.--Following is a brief summary of recent legislative provisions of special interest to Bureau employees:

Changes Effective April 1, 1933, and Continuing through Fiscal Year 1934

All legislative furloughs and other provisions for the current fiscal year pertaining to salary reductions are repealed. Substituted for the furlough plan is a provision for reducing by not to exceed 15 percent "any salary, pay, wage, allowance (except allowances for travel), or other emolument paid for services rendered in any civilian or non-civilian office, position, or employment; . . . but does not include payments out of any retirement, disability, or relief fund made up wholly or in part of contributions of employees." For each 6-months period the President will determine the percentage of reduction by comparing living costs during the preceding six months with those for the 6-months period ending June 30, 1928, known as the base period. The first reduction, 15 percent, was based on a comparison of the period ending December 31, 1932, with the base period. It applies to all employees, the exemption of employees receiving \$1,000 or less per annum having been repealed. Permanent legislation in the original Economy Act granting annual leave with pay not in excess of 15 days in any one year, excluding Sundays and holidays, becomes effective April 1. The law provides that the unused part of the 15 days in any year may be cumulative for any succeeding year. Sick leave regulations promulgated by the President on February 9, 1933, remain unchanged.

Allowance is provided for operation of motorcycles and automobiles used for necessary travel on official business on a mileage basis at not to exceed 2 cents a mile for motorcycles and not to exceed 5 cents a mile for automobiles.

Effective for Fiscal Year 1934

The provision for no administrative promotions is continued. The restriction on filling vacancies is also continued. Essential positions can still be filled upon approval of the President, and temporary, emergency, seasonal, or cooperative positions also remain exempt. Savings under this provision must be impounded into the Treasury. The provision for administrative furloughs—that is, furloughs made necessary on account of reduced appropriations—is continued with the further provision that no employee under the classified civil service shall be furloughed under the provisions of this section for a total of more than 90 days during the fiscal year 1934, except after full and complete compliance with all the provisions of the civil-service laws and regulations relating to reductions in personnel. The provision against obligating or expending appropriations for payment of rentals in excess of a per annum rate of 15 percent of the fair market value of the rented premises is continued, with the added proviso that this shall apply only where the rental to be paid exceeds \$2,000 a year. Retirement reductions from salaries are to be based as at present upon the regular rate of salary pay or compensation instead of on the rate as temporarily reduced under the provisions of the new act.

Permanent Provisions of Original Act Remaining Unchanged

Retirement of civilian employees at the age prescribed for automatic separation from the service is compulsory, but the President may exempt any person from the application of this provision when the public interest so requires.

Provision is made for granting to civil officers and employees a per diem rate of not to exceed \$5 within continental United States and not to exceed an average of \$6 beyond the limits of continental United States, in place of actual expenses for subsistence while traveling on official business away from designated posts of duty. Employees' automobiles are to be excluded from authorizations for transportation at Government expense.

In any reduction of personnel, married persons living with husband or wife employed in the class to be reduced, are to be dismissed before any other persons employed in such class are dismissed, if husband or wife of such persons is also in the service of the United States or the District of Columbia. In appointing persons to the classified civil service, preference is to be given to persons other than married persons living with husband or wife if such husband or wife is in the service of the United States or the District of Columbia.

Provision in Original Economy Act Discontinued

The limitation on amount that may be expended for paper furnished by Government Printing Office for use of the several executive departments has been discontinued. The restrictions now in force under this provision apply only to the current fiscal year.

Messenger Advances.—Roland Morissette, junior messenger, was transferred on March 16, to the position of assistant messenger in the Bureau of Home Economics.

BIOLOGICAL INVESTIGATIONS

Visits New Banding Station in Maryland.--From February 17 to 19 F. C. Lincoln inspected the new banding station for Canada geese, on a farm near Earleville, Md., where a permanent goose trap has been placed in operation. The doors of the trap were first released late in the afternoon of February 19, and about 35 birds were caught. One of these carried a "Jack Miner" band, put on at Kingsville, Ontario, in the spring of 1932. The following day between 60 and 70 more geese were captured. The work at this station, it is hoped, will produce valuable information regarding the breeding grounds of Canada geese that winter in the Chesapeake Bay region. The operator in charge of the station is United States Deputy Game Warden Clarence Webb, Jr.

Studies Waterfowl Conditions on Atlantic Coast.--Dr. H. C. Oberholser returned to Washington on March 20 following a month's study of waterfowl conditions along the Atlantic Coast between the Susquehanna Flats at the head of Chesapeake Bay and Savannah, Ga. He visited the principal waterfowl concentration areas within that section and made observations to determine the abundance of the various species of ducks and geese, and of the whistling swan, this year as compared with last year. He was assisted in the Chesapeake Bay region by Game Protectors Louis A. Branchaud and Orin D. Steele; in North Carolina by Game Protector Birsch; in Georgia by Game Protector Whitehead; and in South Carolina by officials of the Charleston Museum.

FOOD HABITS RESEARCH

Diatoms as Duck Food.--While examining a series of duck stomachs from South Carolina recently, Clarence Cottam found that the colony-forming diatom Synedra pulchella composed 72 and 73 percent, respectively, of the contents of two gadwall stomachs. These are the first bird stomachs examined by the Bureau in which diatoms constituted a major food element.

Mallards Damage Grain Fields.--During February E. R. Kalmbach, of the Food Habits Research Laboratory at Denver, investigated a report of damage by ducks to grain in the Panhandle of Oklahoma. He found that thousands of mallards, mainly drakes, were using the open water in the Cimarron River, for a distance of nearly 70 miles, as a daily resting ground, and were feeding at night in adjacent fields of milo, kafir, and other sorghums. Late maturing crops and a long harvesting period due to the inability of farmers to hire extra labor tended to accentuate the damage. The area is so extensive and the ducks were so numerous that bird minding at night seemed to be out of the question. C. S. Williams, of the Denver laboratory, also found that mallards were damaging Indian corn in southwestern Idaho, but here the depredations were confined to relatively few fields. In another year, bird minding, under proper restrictions, may solve the difficulty in this region.

DISEASE INVESTIGATIONS

Confer on Upland Game-Bird Diseases.--Dr. L. C. Morley of Richmond, Va., spent several days during the week of March 6 in Washington conferring with Doctor

Shillinger and other members of the Bureau on matters relating to diseases of up-land game birds. During the week he and Doctor Shillinger also conferred with members of the faculty of Johns Hopkins University, in Baltimore, in connection with recent developments in disease investigations.

FUR RESOURCES

Addresses Fur Association.--Dr. Karl B. Hanson, of the Fur-Animal Experiment Station, Saratoga Springs, N. Y., addressed the meeting of the Technical Association of the Fur Industry, in New York City, February 20, on Fur Farming as an Important Factor in the Conservation of Fur Resources. The motion picture "How to Handle Foxes" was shown at the meeting.

Earthquake Misses the Rabbit Station.--A telegram received on March 13 from John W. Meyer, of the Rabbit Experiment Station, Fontana, Calif., reported that the station was not damaged by the recent earthquake in that State.

PREDATORY ANIMAL AND RODENT CONTROL

Regional Supervisors Meet.--D. A. Gilchrist, Ira N. Gabrielson, and L. L Laythe, the three regional supervisors of the western districts, arrived in Washington on February 25, to confer with the Washington office and with James Silver, regional supervisor for the Eastern District, on the allotment of funds and other matters relating to field operations for the coming fiscal year. The western supervisors left for their homes on March 19.

Rabies Outbreak in New Mexico Serious.--The rabies outbreak in southern New Mexico, mentioned in the February SURVEY, has assumed serious proportions, and coyotes seem to be the chief source of infection. Many ranchers have reported that cattle and dogs have been bitten by rabid coyotes and that they have frequently seen coyotes in corrals and yards. In one case, 18 of 22 sheep bitten by coyotes showed symptoms of the disease and were killed by the owner. Several bulls held in a feed lot were attacked by a rabid coyote. In one community a trapper was attacked by a coyote in his yard, but he killed it before it could bite him; another trapper was bitten by a coyote and was given Pasteur treatments at El Paso, Texas. Leader J. C. Gatlin has instituted an intensive poisoning campaign against coyotes in southern New Mexico in an attempt to prevent further spread of the disease. The Bureau of Indian Affairs, of the Department of the Interior, recently requested assistance in poisoning coyotes on the Mescalero Apache Indian Reservation. Mr. Gatlin is supervising the work, and the Indian Bureau is furnishing transportation, bait and other supplies, and labor for distribution of baits. This seems to be one of the most serious outbreaks of rabies in recent years.

Studies Methods of Controlling Crawfishes.--H. J. Spencer, of the Control Methods Research Project, in cooperation with officials of the Mississippi Agricultural Experiment Station and the State Plant Board, is carrying on investigations in Mississippi to find methods for the control of crawfishes, which are damaging the crops in that region. A company manufacturing fumigants is furnishing calcium cyanide for the purpose and has assigned an investigator to work with Mr. Spencer.

Career of Famous Dog Ends. --Leader Ben E. Foster, of the Arizona District, writes as follows: "We are very sorry to report that one of our most faithful hunters has gone to his Happy Hunting Ground. Keno, lead dog of Hunter Frank Colcord's pack, died at the end of his tenth year of work. The Arizona Republic devoted two half-columns of its front page to Keno's splendid record. During the last eight years, he has taken 130 mountain lions, and was the nearest to a perfect dog that this writer has ever had the opportunity to hunt with."

Predators Take Heavy Toll of Deer in California. --A tabular statement in the annual report on wild life in national forests of California, compiled by the Forest Service for the calendar year 1932, shows that almost twice as many deer were killed in these forests by predatory animals as by hunters. Predatory animals were estimated to have killed 27,611 deer during the year, while hunters during the open season killed 14,408. The supervisor of the Shasta National Forest reports that during the past two years efforts have been made to determine the extent of damage to deer by coyotes. The supervisor of the Sierra National Forest reported 42 cases during the hunting season in which coyotes were seen chasing deer, and says that rangers and others who spend considerable time in the woods are convinced that every year many deer are killed by these predators.

LAND ACQUISITION

Completes Survey of Chinsegut Hill Refuge. --Charles S. Cook has completed the survey and marking of boundaries of the Chinsegut Hill Migratory Bird Refuge in Florida and has reported to the Washington office for a short detail before returning to his official station at Kansas City, Mo.

Boulder Canyon Lake Reserved as Wild Life Sanctuary. --The lake to be created by the Hoover Dam on the Colorado River will become a refuge for wild birds and animals under an Executive order signed on March 3 by President Hoover, and will be known as the Boulder Canyon Wild Life Refuge. Superimposed on part of the land and water area withdrawn for the Boulder Canyon project for river regulation, flood control, irrigation, domestic water uses, and power development, the new wild-life refuge will cover a total of about 620,000 acres, approximately 132,000 acres of which will be a vast artificial lake in the valley of the Colorado River in Arizona and Nevada. The refuge will be administered by the Biological Survey, subject to use by the Department of the Interior for its primary purposes. The flooded area will be wholly in the Lower Sonoran Life Zone, with the hot summer and mild winter climate of the mesquite and creosote bush country and will provide a breeding ground for many interesting birds and mammals of the southwestern desert region, and a winter resort for many northern migratory birds. Formerly it was a paradise throughout the year for Arizona quail, roadrunners, thrashers, and other birds. In winter, swans, snow geese, many ducks, some shorebirds, waders, and a host of other smaller migrant birds found a congenial resort in the Virgin and Colorado River Valleys, the natural outlet of the Great Basin. When this area becomes a great lake, with curving bays and deep inlets cutting back into side valleys and gulches, it will again be a great attraction

for northern waterfowl and provide cover and food for the resident birds that are pushed back from the middle of the valley. To migratory birds, the refuge will be an oasis in an otherwise arid country, a way station between Klamath Lake Refuge, Oregon, and the Gulf of California. The Bear River Migratory Bird Refuge lies 400 miles northeast, the Salton Sea Refuge 225 miles to the south, and the Fallon Migratory Bird Refuge in Nevada about 350 miles northwest. The new refuge therefore should prove a valuable resting spot and winter resort for many waterfowl that now seek congenial waters beyond our southern border. Beavers, muskrats, and otters will be the main local aquatic mammalian fauna, but the protected area will also provide homes for antelope-squirrels and chipmunks, as well as for little desert foxes, gray foxes, raccoons, and other interesting species. The value of the new refuge is greatly enhanced by its geographic position, and a more favorable place for preserving and enjoying the close presence of aquatic and other wild life could not be found in the Southwest.

GAME AND BIRD CONSERVATION

Visits Washington.--United States Game Protector W. L. Birsch, of Elizabeth City, N. C., conferred with officials in the Washington office on March 6.

Bureau Motor Boat Stolen.--The government-owned motor boat assigned to United States Game Protector Stephen Creech was stolen at Beardstown, Ill., on the night of March 3, but was recovered the next morning at La Grange, Ill. Two persons alleged to have taken it were arrested on March 5, and the cases were submitted to the Federal grand jury in Springfield, Ill., on March 8.

Feeding Saves Ducks.--Feed distributed at selected points in southwestern Montana saved thousands of wild ducks, principally mallards, from starvation in the latter part of February, United States Game Protector Kenneth F. Roahen reports. Under trying weather conditions Protector Roahen, together with a State game warden and members of the Rod and Gun Clubs of Billings and Laurel, distributed several thousand pounds of corn and wheat donated by local farmers and sportsmen. With the temperature 20 to 40 degrees below zero, they packed the grain by sled and snowshoe to the feeding points.

At the Elk Refuge.--On March 1 at least 11,000 elk were congregated on the feeding grounds at the Elk Refuge, Wyo., and on the three State feeding grounds south of Jackson. Feeding operations last year continued until April 5.

Birds Arrive at Tule Lake.--Protector Hugh M. Worcester, of Tule Lake Bird Refuge, California, reports that on March 1 about 14,000 geese covered the field in front of the refuge headquarters, of which number about 90 percent were Canada geese. He has observed more Canada geese this year than last. In one locality he saw about 25,000 lesser snow geese, with a few of other species, feeding on an area of 1,400 acres. He estimated that 12,000 pintails, besides mallards, mergansers, widgeons, and green-winged teal were also on the refuge, and he saw a flock of more than 300 meadowlarks.

Appointed.--George D. Keenan has been appointed United States deputy reservation protector for a part-time employment at the Crescent Lake Migratory Bird Refuge, Nebr.

Garnett W. Saye, United States deputy reservation protector at the Savannah River Wild Life Refuge, S. C., died on February 16 at Savannah, Ga., following an illness of two weeks. Mr. Saye was greatly interested in wild-life protection and in the bird refuge under his care, and was highly esteemed by his associates in the Biological Survey.

Parrots Again Popular.--On February 24, the first large shipment of parrots in nearly a year arrived at New York City. It contained 40 gray parrots from Takaduri, West Africa. The birds were quarantined for 15 days and, according to the report of our inspector, were found to be in excellent condition. Another shipment containing 90 parrots and 10 macaws arrived from Corinto, Nicaragua, on March 6.

First Shipment of Mexican Quail Received.--Although the quail season opened on February 15, no birds were entered until March 11, when a shipment containing 1,300 arrived at Laredo, Tex., for points in that State.

Rare Birds Imported.--Among the more interesting birds imported during the month were 20 Philadelphia finches (Spermophilus nigroaurantia), which arrived at San Francisco from Santos, Brazil, on March 6.

THE SURVEY

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No. 4

GENERAL NOTES

Addresses Students and Sportsmen.--Mr. Redington left Washington on April 19 for State College, Pa., where he lectured to students and faculty members of Pennsylvania State College and local sportsmen on the activities of the Biological Survey in wild-life conservation. He spoke in the naturalist-lecture series being sponsored at State College by the departments of forestry, nature education, and poultry husbandry, of the school of education, and in connection with the lecture made use of the Bureau's film entitled "Our Wild Life Resources." From State College the Chief proceeded to Cleveland, Ohio, where he inspected the migratory-bird research station maintained by S. Prentiss Baldwin, and addressed biological students and the faculty of the Western Reserve University. Mr. Redington later attended the annual convention of the Izaak Walton League of America, held in Chicago, April 27-28, and delivered there an address on the work of the Biological Survey. He planned to return to Washington about May 1.

Official publications have been received as follows:

"Hints on Mountain-lion Trapping," by Stanley P. Young, Principal Biologist, in Charge, Division of Predatory Animal and Rodent Control. Leaflet No. 94, 8 pp., illus., April 1933. Received April 24.

"Raising Deer in Captivity," by Vernon Bailey, Chief Field Naturalist, Division of Biological Investigations. Leaflet Bi-1274, 2 pp., April 1933. Received April 28.

BIOLOGICAL INVESTIGATIONS

Continues Work in North Carolina.--During March and April T. D. Burleigh has continued wild-life studies in western North Carolina, and he reports that, in spite of an abundance of foxes, quail coveys on the Bent-Creek area went through the winter without appreciable losses. In connection with his activities in North Carolina Mr. Burleigh has had an opportunity to aid in developing a general appreciation of nature, particularly among students, and he considers his resulting efforts a valuable part of his work there. He has talked on nature subjects to assemblies at various schools, has conferred with a number of teachers, and by holding meetings in his laboratory has come in personal contact with students especially interested in nature study.

FOOD HABITS RESEARCH

Makes Further Eel-Grass Study.--Clarence Cottam returned to Washington on April 21 from a further study of the Atlantic Coast eel-grass situation and the effect of the shortage on waterfowl, especially brant. After leaving Washington late in March, he visited the coasts of Maryland, New Jersey, New York, Massachusetts, and Maine.

Studies Relation of Crows to Nesting Waterfowl.--Ross O. Stevens went to Cambridge, Md., on April 9 to cooperate with Peter J. Van Huizen, acting supervisor of the Blackwater Migratory Bird Refuge, in studying the relations of crows to the nesting of waterfowl on the refuge and the desirability and nature of methods of control.

Investigates Feeding Habits of Mallards and Pintails.--In northwestern Nebraska E. R. Kalmbach, in charge of the Denver laboratory, recently investigated the spring feeding habits of mallards and pintails as they relate to the practice of feeding corn to cattle and hogs on open prairie land.

DISEASE INVESTIGATIONS

Mild Myxomatosis Discovered in Rabbits.--A mild North American strain of myxomatosis virus has been discovered in rabbits by scientists at the Rockefeller Institute at Princeton, N. J., and laboratory tests have demonstrated that it immunizes animals against the virulent South American strain, which is prevalent in some parts of California. Tests are being conducted by Dr. F. D. McKenney to determine whether rabbits in commercial rabbitries may thus be protected--much as human beings are immunized against smallpox by the use of cowpox virus.

Inspects Work on Quail Disease.--On April 6, Doctor Shillinger inspected the work being conducted at the Richmond (Va.) field station on losses in upland-game birds. Dr. L. C. Morley, who has charge of the investigations, told of his work in reproducing ulcerative enteritis, commonly known as quail disease, by mixed cultures of organisms obtained from infected birds, and of the prospects of determining the identity of the organism responsible for this serious malady.

Reports Outbreak of Disease in Foxes.--Doctor Hanson, of the Fur Animal Experiment Station, reports a renewed outbreak of disease among silver foxes in New York State. Considerable trouble has been encountered in the past on some ranches in that part of the country, and intensified efforts are being made this spring to diagnose the ailment and develop satisfactory control measures.

Duck-Sickness Outbreak Observed.--While in northwestern Nebraska on the food-habits investigation reported on above, E. R. Kalmbach, of the Denver Food Habits Research Laboratory, witnessed the mortality resulting from a duck-sickness outbreak at a small lake near Irwin and obtained material for bacteriological study. Although other outbreaks of the malady have been reported this spring, this is the first from which the Bureau has been able to obtain such material.

An illustrated talk on Duck Sickness was given by Mr. Kalmbach at the monthly meeting of the Denver United States Department of Agriculture Club held on April 12.

FUR RESOURCES

Addresses Members of Technical Association.--On March 19, Mr. Ashbrook addressed the meeting of the Technical Association of the Fur Industry, in New York City, on recent advances in scientific studies of fur farming, particularly on efforts to improve breeding practices. The motion picture entitled "The Fur Industry of the

United States" was shown, the audience being interested primarily in fur dressing and dyeing.

Present at Fellowship Dinner.--Mr. Ashbrook attended the dinner given on April 10 by the Fellowship Students of the Brookings Institution of Washington, in honor of Dr. G. W. Field. The evening was spent in informally discussing various problems pertaining to the conservation of wild life.

Large Number of Foxes Born.--Dr. Karl B. Hanson reported recently that 71 silver-, red-, and cross-fox pups had been born this season at the Fur-Animal Experiment Station, Saratoga Springs, N. Y., and that three more litters were expected shortly.

Muskrat Trapping Season Closed.--Frank R. Smith, in charge of the fur-animal station at Church Creek, Md., reports that as the muskrat trapping season in Maryland has closed, the taking of muskrats for use at the station has been discontinued. The Maryland State Legislature has recently provided, however, that for scientific purposes fur animals may be trapped during the close season. The new law becomes effective on June 1.

Study Costs of Feeding Rabbits.--Work is being done at the Rabbit Experiment Station, Fontana, Calif., to determine costs of feeding rabbits from weaning time, 8 weeks of age, until they have attained a weight of 6 pounds. There are 141 weaned rabbits, divided into 10 lots, now being fed 8 different rations. The feeding of these groups will be concluded June 15, and data will then be available for the guidance of commercial rabbit raisers. The experiment is progressive, and new groups will be started from time to time. By January 1, 1934, data will thus have been obtained on more than 300 rabbits.

PREDATORY ANIMAL AND RODENT CONTROL

Ten States Assure Biennial Funds.--Cooperative control funds for the ensuing biennial period have been definitely assured in reports received by the Bureau from Washington, Oregon, New Mexico, Utah, Nevada, Montana, Idaho, Oklahoma, Arkansas, and Wyoming. The funds appropriated have, however, been somewhat reduced because of financial difficulties facing the States. No definite reports have yet been received as to continuance of cooperative funds by California, Colorado, Michigan, Missouri, South Dakota, or Texas.

Rodent Control Included in Reforestation Act.--The Biological Survey has been requested to furnish estimates for additional rodent-control work within the national forests that might be done under the Reforestation Act (S. 598), which was approved on March 31. Rodent control has been included as one class of work to be performed under this emergency conservation program, although the extent to which this project may be enlarged under the terms of this act within those States having national forests has not been determined.

LAND ACQUISITION

Continue Swanquarter Investigation.--On April 4, Robert M. Rutherford, Albert J. Rissman, and James M. McQueen left Washington for Swanquarter, N. C., to complete

the investigation of reported damage by fire to lands within the Swanquarter Migratory Bird Refuge. The investigation was begun some time ago but had to be abandoned because of weather conditions.

GAME AND BIRD CONSERVATION

Returns from the Southeast.--W. R. Dillon returned April 14 from a 10-day trip in the Southeastern States, where he had been conferring with Bureau employees and others on problems connected with the administration of migratory-bird refuges and the enforcement of the Migratory Bird Treaty Act.

Spoonbills Nest in Southern Florida.--U. S. Game Protector J. V. Kelsey reported on April 8 that 20 pairs of roseate spoonbills were nesting on Lane River in southern Florida. This is the first record in seven years of spoonbills nesting there.

Plead Guilty to Stealing Boat.--The two persons charged with stealing on March 3 the Government-owned boat and outboard motor assigned to U. S. Game Protector Stephen Creech, at Beardstown, Ill., plead guilty and were sentenced--one to six months in jail and the other, because of his age, to one day in the custody of the United States Marshal.

Earthquake Affects Birds.--Birds were frightened during the recent earthquake shocks in southern California, reports Louis B. Adams, United States deputy game warden, of Pasadena. Mockingbirds, he says, flew around screaming, and a flock of ducks observed during one of the shocks rose suddenly into the air and wheeled around uttering frightened cries.

Observes Many Ducks on Upper Mississippi Refuge.--Ranger Harley C. Lawrence, of the Upper Mississippi River Wild Life and Fish Refuge, reports that on April 7 while on patrol duty in Allamakee County and in the Winneshiek area he observed more ducks than he had previously seen at any one time during the past five years.

Waterfowl Numerous at Lake Malheur.--Protector George M. Benson, of Lake Malheur Bird Reservation, Oreg., reports that on March 20, while inspecting conditions on Cole Island within the refuge boundaries, he noted just offshore about 50,000 ducks and 4,000 snow geese and also about 400 swans farther out on the lake.

Appointed.--Frank Rost has been appointed United States deputy reservation ranger and United States deputy game warden at the Upper Mississippi River Wild Life and Fish Refuge.

Benjamin M. Hazeltine, who has been on part-time duty for several years at Benton Lake Bird Refuge, Mont., has again been reappointed.

Addresses Sportsmen's Meeting.--Superintendent George E. Mushbach, of the Bear River Migratory Bird Refuge, Utah, spoke at the annual meeting of the Cache Valley Fish and Game Association, held at Logan, Utah, on March 30, on The Future of the Bear River Refuge. About 250 sportsmen were in attendance.

Pelican Nests Destroyed.--High tides and storms recently swept away the nests of pelicans breeding on Sandy Point, S. C., reports Harold F. West, Acting Supervisor of the Cape Romain Migratory Bird Refuge. About 20 nests had been built. The pelicans, now about twice as numerous on Sandy Point as last year, are again building nests, but Mr. West is "pessimistic about their chances".

Attends Forest Protection Meeting.--Supt. Ray C. Steele, of the Upper Mississippi River Wild Life and Fish Refuge, attended the biennial meeting of the Lake States Regional Forest Protection Board, at Milwaukee, Wis., March 23 to 24. Among matters of interest discussed was the problem of fire prevention and control on the refuge and on the national forests in that region.

Generous Cooperation Saves Birds.--The heaviest snowfall of the winter came suddenly upon the northern portion of the Upper Mississippi River Refuge on March 19 and 20, blanketing the ground to such a depth that it was practically impossible for game birds to obtain natural food. During the mild springlike weather that had previously prevailed many song and insectivorous birds had arrived, on their northward migration, and these as well as the pheasants, quail, prairie chickens, and other upland species were in a serious plight. The activities of the entire ranger organization were concentrated in an effort to supply needed food to the birds. Snow-blocked roads made the work extremely difficult. At the request of Superintendent Steele radio stations WCCO, Minneapolis, and WKBH, La Crosse, broadcast intermittent appeals on Sunday evening, March 19, urging the public to place food for the birds in back yards, trees, and along fences. The local press likewise assisted in publishing the appeal. An enthusiastic response was received, one market alone in La Crosse providing 2,500 pounds of suet. Such generous and wholehearted cooperation unquestionably saved thousands of birds from starvation.

Ranger Transferred.--As a consequence of the recent surveying and posting of considerable areas of Upper Mississippi River Refuge lands between La Crosse, Wis., and McGregor, Iowa, which increased greatly the area to be administered in that portion of the refuge, Ranger Harley C. Lawrence was transferred from Dubuque, Iowa, to Lansing, Iowa, effective March 16.

Reports Waterfowl Conditions on Upper Mississippi.--Migratory waterfowl on their spring migration arrived on the northern portion of the Upper Mississippi River Refuge on February 26, when approximately 1,500 mallards were noted in the Target Lake area opposite La Crosse, reports Superintendent Steele. Within the next few days considerable numbers were observed at other points nearby. The severe winter weather that prevailed during the week beginning March 19, however, drove most of them back. During the last few days of March melting snow and heavy rains caused the river to rise rapidly, and by April 1 practically the entire refuge throughout its 284-mile length was inundated, creating almost ideal conditions for waterfowl. Considerable numbers of scaups and mallards, as well as various other species of ducks in lesser numbers, were present throughout the area. In this connection, says Mr. Steele, it is interesting to note that the stage of water then prevailing was approximately that proposed to be attained by the projected 9-foot channel being undertaken by the Army engineers.

No Muskrat Trapping on Upper Mississippi.--To avoid jeopardizing the breeding stock of muskrats on the Upper Mississippi River Refuge, no part of the area in any of the four States in which the refuge is situated was opened this spring to the public trapping of these animals. Three of the States likewise did not permit muskrat trapping. Houston County, Minn., was open to trapping from March 25 to April 5, inclusive. Since there are large tracts belonging to the refuge in that county, it was necessary to increase the ranger patrol force in that area during the State open season.

New Importation Regulations Issued.--New regulations for the importation of wild animals and birds were approved by the Secretary of the Treasury on March 4 (T. D. 46255). The principal changes from the old regulations are that permits are now required for all mammals whether brought in as passengers' baggage or otherwise; that birds brought in as passengers' baggage are now limited to parrots and canaries, not more than 5 in number; and that zoological gardens, like individuals, are required to obtain permits for importing wild animals and birds.

Fewer Quail Entered from Mexico.--Comparatively few shipments of quail have arrived from Mexico thus far this season. The total number of birds entered from February 15 to April 8, according to the inspectors' reports, was only 17,091, as compared with 37,000 during approximately the same period last year. To date most of the birds have been entered at Laredo, with a few shipments at Eagle Pass, and none at Brownsville.

Gorilla Passport Held up by Lack of Credentials.--A permit for the entry of a gorilla from Kribi, French Cameroons, Africa, which arrived on board the Steamer "West Humhaw" on January 4, was issued on April 13, action on the application having been suspended for 3 months in the absence of authority for export from the officials in the French Cameroons, where gorillas are stringently protected. After a return trip to Africa the captain of the steamer, who brought in the gorilla, obtained the necessary authority and a certificate from the nearest United States Consul, as required under Section 527 of the Tariff Act.

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PEACE & PROGRESS

JUN 5 - 1933

U. S. Department of Agriculture

Vol. 14

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No. 5

GENERAL NOTES

Chief Says Relief Programs May Offer Chance to Restore Water Areas.—Unemployment-relief programs may offer a splendid chance to establish water areas for our migratory waterfowl, Mr. Redington told the Izaak Walton League of America at its annual convention held in Chicago on April 27 and 28. "Deforestation and erosion, with the resultant depletion of water areas," he said, "have worked no good to man, beast, or fowl. There must be a real renaissance if we are to program a wide intensive effort to build up our diminished water resources, and I believe that the time now appears ripe to tackle the situation which confronts us in many States." The convention called upon Federal and State officials and the public to begin a far-reaching program to this end and adopted a resolution urging that water restoration be included in the Federal reforestation program. It also petitioned the Federal Government to continue conservation research.

Elected President of Mammalogists.—Vernon Bailey, Chief Field Naturalist, of the Division of Biological Investigations, was elected president of the American Society of Mammalogists at its fifteenth annual meeting held at the Biological Institute of Harvard University, in Cambridge, Mass., May 9 to 13. At the various sessions of the society's meetings five papers by members of the Biological Survey were presented. A paper by Mr. Bailey dealt with "The Importance of Types and Type Localities in the Study of Mammals", and one by E. A. Goldman discussed "The Isolation Factor in the Evolution of Species." Dr. H. H. T. Jackson, a member of the society's board of directors, spoke on "Preservation of Teeth of Larger Mammals." Dr. T. S. Palmer discussed the question, "Are There Sixty Thousand Antelope in the United States and Canada?" Illustrated with slides, a paper by Chas. C. Sperry, of the Denver Food Habits Research Laboratory, dealt with the subject, "Fall Food Habits of Coyotes, a Report of Progress, 1932." A report, illustrated with motion pictures and slides, on "A Collecting Trip Across Northern Mexico," made last winter in company with Mr. Bailey, was presented by Frederic Winthrop, Jr., of the Museum of Comparative Zoology. The Bureau was also represented at the meeting by Mr. Henderson, E. A. Preble, and Mrs. Viola S. Snyder. Mr. Preble and Mrs. Snyder were again elected chairman of the society's editorial board and treasurer, respectively.

Wild-Life Exhibit at Chicago Exposition.—To emphasize the need for a permanent program of conservation, the Biological Survey has cooperated with the Department's Office of Exhibits in preparing a wild-life exhibit for the Century of Progress Exposition, which opened in Chicago on May 27. Specimens of mammals and birds have been mounted in a scene representing a valley in the middle of which is a winding stream bordered by a meadow, with rolling foothills and forested uplands on either side. The foreground represents a sylvan lake and brook amid trees, with undercover of shrubs and woodland grasses on one hand and drier upland country on the other. The Department's 18-unit exhibit has been installed in the United States Government building at the exposition.

Official Publications have been received as follows:

"What the Biological Survey is Doing for Rabbit Breeders," by Chas. E. Kellogg, Biologist, Division of Fur Resources. Leaflet Bi-1279, 3 pp., May 1933. Received May 10.

"Preliminary Report on Study of Raven's Food," by Arnold L. Nelson, Junior Biologist, Division of Food Habits Research. Leaflet Bi-1281, 1 p., May 1933. Received May 20.

"Federal Laws Relating to Wild Life in Alaska." Alaska Game Commission Circular No. 10, 12 pp., April 1933. Received May 20.

ADMINISTRATION

Personnel Detailed to Agricultural Adjustment Administration.--The Biological Survey as well as other Bureaus in the Department has been called upon by the Secretary to detail for 60- or 90-day periods some of its stenographers, typists, and clerks to assist in carrying out the provisions of the emergency farm relief legislation. Ten of the Survey's Washington force, selected for this temporary detail, are being released from their present work in accordance with the requirements of the new organization.

Bureau Moves to New Quarters.--As the space recently occupied by the Biological Survey in the South Building is required for use of the new Agricultural Adjustment Administration, with which the Secretary is desirous of keeping in close contact, the Bureau's South Building offices, with the exception of certain units of the Division of Biological Investigations having valuable records, have been moved to Building C (one of the temporary war-time buildings), located between Sixth and Seventh Streets, and between Constitution Avenue NW. and B Street SW. Adequate space has been obtained on the second floor in Wings 4 and 5. The new quarters are only temporary, and according to present plans, all the Bureau's Washington offices, now located in five buildings, will within a year be consolidated in one section of the South Building now under construction.

BIOLOGICAL INVESTIGATIONS

Attends Regional Congress for Foresters.--C. M. Aldous attended the Regional Congress and Training School for Foresters held at Rhinelander, Wis., early in May. This congress was composed of the regional forest personnel, the forest supervisors, and members of the Lake States Forest Experiment Station.

Continues Studies of Waterfowl.--L. J. Goldman is continuing his observations on waterfowl in Idaho. During the latter part of April he found few ducks on the Minidoka Bird Refuge, but on Snake River, near Burley, ducks of several species, evidently migrants, were then present. In connection with a study recently begun on several of the breeding places in southern Idaho, Mr. Goldman on May 11 reported that nesting was just beginning.

FOOD HABITS RESEARCH

Inspects Quail-Management Projects.--From April 23 to May 16 Ross O. Stevens was inspecting cooperative quail-management projects in North Carolina, South Carolina, Georgia, Arkansas, Oklahoma, and Indiana.

DISEASE INVESTIGATIONS

Addresses Meeting of Virginia Academy of Science.--Dr. Shillinger spoke on various abnormalities of wild life before the Medical Section of the Virginia Academy of Science at its annual meeting, held in Fredericksburg on May 5 and 6. His talk was illustrated with lantern slides. On May 6 he conferred with Dr. L. C. Morley on the progress being made in the study of infectious diseases of game birds at the Richmond laboratory.

Visits Fox Ranch.--Dr. Karl B. Hanson, of the Fur Animal Experiment Station, Saratoga Springs, N. Y., went to Boonville, N. Y., on April 28, to investigate an outbreak of disease among foxes and to collect specimens for histological study. He returned to his headquarters on May 3.

FUR RESOURCES

Reports on Whelping Season at Fur Animal Station.--A litter of 7 fox pups was recently born at the Fur Animal Station, reports Dr. Hanson. There are now 68 young foxes at the station, all of which appear to be in splendid condition. Four litters of minks were born during the latter part of April and the first week in May, but at the time of his report Dr. Hanson had not yet determined the number of young.

PREDATORY ANIMAL AND RODENT CONTROL

Plan Rodent Control in Reforestation Program.--Mr. Young and W. E. Crouch left Washington, on May 4, to attend a conference of rodent-control leaders at Pocatello, Idaho, called to formulate and work out policies in connection with rodent control to be included in the Reforestation Program. They returned on May 19.

Obtains Remarkable Record of Coyote Embryos.--Leader George E. Holman, of the Utah district, reports that west of Kanosh, Utah, Hunter Adria Ahlstrom recently trapped a female coyote that was carrying 17 unborn pups. Mr. Ahlstrom also obtained a photograph of these, authenticated by an affidavit of several citizens of the community.

LAND ACQUISITION

To Survey Areas of Upper Mississippi Refuge.--Charles S. Cook left his official station at Kansas City, Mo., on May 18, for the Upper Mississippi River Wild Life and Fish Refuge, to survey several tracts of land that must be condemned before safe title to them can be conveyed to the United States and the areas included in the refuge.

On Special Duty Connected with Malheur Refuge Case.--Albert Smith, Jr., is on special assignment in connection with the Malheur-Refuge land-title case. He is assisting Randolph S. Collins, of the Department of Justice, in preparing a reply to the brief filed by the assistant attorney general of Oregon.

Additional Refuge Areas Being Acquired.--The third payment was recently made for lands acquired from a cattle and loan company for inclusion within the Crescent

Lake Migratory Bird Refuge. The total area of these lands is 36,920 acres, and to date 35,046 acres have been conveyed to the United States.

Acquisition of 3,511 acres from a timber corporation for the Swanquarter Migratory Bird Refuge, N. C., has been consummated, practically completing the transfer of all lands within the refuge that have been approved for purchase by the Migratory Bird Conservation Commission. The refuge now contains 15,492 acres.

GAME AND BIRD CONSERVATION

In New York on Lacey Act Investigations.--F. P. Callaghan and United States Game Protector P. S. Farnham, of Owego, N. Y., were in New York City during the week of May 7 making investigations in connection with the enforcement of the Lacey Act.

Drought Broken.--Western Kansas, eastern Colorado, and much of the Texas and Oklahoma Panhandle were recently soaked by a 3-inch rain that followed one of the worst droughts in local history, reports United States Game Protector J. Q. Holmes. A great benefit to waterfowl and shorebirds is expected, says Mr. Holmes, the rain having filled all the prairie ponds and lagoons. Although the major spring flight of waterfowl has passed on north, he reports that some of the smaller species of waterfowl and many shorebirds remain.

State Conservation Syllabus Cites Bureau's Work.--A syllabus published by the Washington State Society for the Conservation of Wild Flowers and Native Trees, for use in the schools during the State conservation week, April 23 to 29, devoted one of the daily programs to the conservation of birds, game, and fish and called attention to the Migratory Bird Treaty Act and the eight Federal wild-life refuges maintained in the State by the Biological Survey. Leo K. Couch, of the Division of Predatory Animal and Rodent Control, leader of the Washington district, is a member of the Society's advisory committee.

Gives Bird Talk at Lions Club Meeting.--United States Reservation Protector Hugh M. Worcester of Tule Lake and Clear Lake Bird Refuges, Calif., and Upper Klamath Wild Life Refuge, Oreg., spoke at a meeting of the Lions Club, at Klamath Falls, Oreg., on April 25, on the different varieties of ducks and geese that frequent the Tule Lake Reservation and vicinity.

Elk Return to Refuge.--A recent report received from Almer P. Nelson, protector of the Elk Refuge, in Jackson Hole, Wyo., states that much snow fell on the refuge and the adjacent foothills during the first week in May, and that many of the elk that had left the valley on their spring migration to the mountains returned to the meadow lands of the refuge.

More Elk Counted on Feeding Grounds Than Ever Before.--More elk were counted on feeding grounds in the Jackson Hole region last winter than in any previous year, Mr. Nelson reports. At the Elk Refuge 7,456 animals were counted, and those found on three nearby State feeding grounds brought the total to 11,239, about 1,250 more than ever before. The count was made in cooperation with the Forest Service and the Wyoming State Game Department. About 2,000 tons of hay and 100 tons of cottonseed cake were used during the winter in feeding the elk on the refuge, Protector Nelson reports.

Antelope Reach Summer Range on Sheldon Refuge.--Antelope reached their summer range at the Charles Sheldon Wild Life Refuge, Nev., on March 24, after an absence of 3 months, reports Ernest J. Greenwalt, who is in charge of the refuge. Three large and three small herds, totaling about 600 animals, were counted in an area of about 4 square miles. Topping a rise after rounding a high lava rim Mr. Greenwalt saw 40 or 50 animals of the first and largest herd observed during the day. They took alarm immediately, he reports, and in an instant some 200 antelope in the valley below leaped suddenly to their feet. Outlying animals raced to a common center and at full speed maneuvered into a solid mass of tan and white. Closely packed they sped to the brow of a knoll and in unison wheeled and halted, every head up and ears stiffly erect. As the antelope started out in single file, Mr. Greenwalt counted 226. Later in the day he saw other herds of 145, 137, 38, 29, and 16 animals. The antelope appeared sleek and well fed.

Appointed.--Charles E. Cooper, who has been on part-time duty for several years at the Anaho Island Bird Reservation, Nev., has again been appointed for the period of the nesting season. Charles I. Park, who has for several years served as protector of the Tortugas Keys Bird Reservation, Fla., during the nesting season, also has been reappointed. Louis E. Tabatt has been appointed a United States deputy reservation ranger at the Upper Mississippi River Wild Life and Fish Refuge.

Transferred.--Miss Mary E. Savage, stenographer at the Upper Mississippi River Refuge, has been transferred to the headquarters office of the Bear River River Migratory Bird Refuge, Brigham, Utah. She will fill the vacancy created by the resignation of Mrs. Eleanor Ross Bellairs.

Game-Law Violators Arrested.--Ranger A. J. Cheney, of Bellevue, Iowa, recently apprehended three persons on the Upper Mississippi River Refuge for illegal possession of migratory game birds.

Plant Trees on Refuge.--About 2,500 trees and shrubs, chiefly mulberry, high-bush cranberry, mountain-ash, walnut, and red pine, were planted on upland portions of the Upper Mississippi River Refuge in the vicinity of McGregor, Iowa, this spring. The planting was done under the immediate supervision of Howard A. Miller, junior forester of the refuge.

Fewer Quail Imported This Season.--The total number of quail imported from Mexico during the season that closed April 30 was 22,110, the smallest number brought in during any quail-importation season in a decade. In 1923 the total was only 9,123, and in 1932, 39,131. More than three-fourths of the quail this year were entered at Laredo, the remainder at Eagle Pass, and none at Brownsville. Most of these were shipped to Texas, Tennessee, and Kansas.

Entry of Mongoose Prevented.--When word was received that a mongoose was on board a yacht returning from a cruise in tropical waters and due in San Diego, Calif., April 25, the Bureau immediately communicated the information to the Collector of Customs at San Diego directing that the animal be destroyed or returned at once. The captain of the yacht, after being advised of the matter and being loath to destroy the animal, which was quite tame, put it ashore at Acapulco, Mexico. The yacht also had on board a large consignment of interesting animals and birds for the San Diego

Zoo, including 4 Galapagos Island penguins and 2 flightless cormorants.

Flamingoes Stop at New York En Route to Germany.--Originally intended for Germany, 200 flamingoes arrived at New York on the steamer Oriente from Habana, Cuba, on April 29. No permit for their shipment having been obtained, they were transferred to the steamer Hamburg, which sailed for Germany May 3.

THE SURVEY

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U. S. Department of Agriculture

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No. 6

GENERAL NOTES

Represent Bureau at Western Game Meeting.—H. P. Sheldon, in charge of the Division of Game and Bird Conservation, and Ira N. Gabrielson, supervisor of predatory-animal and rodent control in the Pacific Region, represented the Bureau of Biological Survey at the annual meeting of the Western Association of State Game and Fish Commissioners, held in Vancouver, British Columbia, on May 18 and 19. Mr. Sheldon presented a paper on the status of wild fowl and Mr. Gabrielson one on the necessity for discrimination in the control of predatory birds.

University Honors Author of Birds of New Mexico.—The University of New Mexico recently conferred the degree of Doctor of Laws on Mrs. Florence Merriam Bailey in recognition of the educational and scientific value of her work on the Birds of New Mexico. This book, based mainly on field work of the Bureau, was published in 1928 by the New Mexico State Department of Game and Fish, in cooperation with the New Mexico Game Protective Association and the Bureau of Biological Survey. For the book Mrs. Bailey in 1931 received the Brewster award, given biennially by the American Ornithologists' Union to the author of "the most important work relating to the birds of the Western Hemisphere published during the preceding six years."

Official Publication.—The following official publication was received on June 3:

"Regulations Relating to Game, Land Fur Animals, and Birds in Alaska." Alaska Game Commission Circular No. 11, 32 pp., April 1933.

BIOLOGICAL INVESTIGATIONS

Collect Bird and Mammal Specimens.—A. H. Howell and Thomas D. Burleigh returned to Washington on June 13 from a six weeks' field study of birds and mammals in Georgia and North Carolina. By automobile they made a complete circuit of Georgia and visited several points in the mountains of North Carolina. They collected 287 specimens and gathered much new information on the distribution of birds and mammals and on the boundaries of the life zones. Later, during a vacation on Mount Mansfield, the highest mountain in Vermont, Mr. Howell and Mr. Burleigh collected about 42 specimens of birds and 21 of mammals, most of which will be placed in the Biological Survey's collection at the United States National Museum. Of special interest are three skins of Bicknell's thrush—the first breeding specimens of this bird to be added to the collection—and two beautiful nests of the same species, found in the dense fir forest at the summit of the mountain, 4,000 feet above sea level.

Study Relation of Rodents to Spotted Fever.—Several cases of spotted fever, one resulting in death, were reported in June in the vicinity of Washington, D. C., and some alarm was felt at the possible spread of the disease, which seems to be firmly established in this region. At the request of F. C. Bishop, of the Bureau of Entomology, Chief Field Naturalist Vernon Bailey has been demonstrating methods of cap-

turing wild rodents alive to learn which species serve as hosts for the young ticks and to determine their abundance, location, and possible means of control. As is well known, rodents serve as hosts for ticks in their immature stages during the first summer. During the second spring and summer the adult ticks attach themselves to dogs, cattle, horses, and human beings. Though only ticks that have been inoculated with the spotted fever organism convey the disease, it is important to know which rodents serve as the principal hosts of young ticks and whether these can be sufficiently reduced in numbers to check materially next year's tick crop, and thus reduce the danger from spotted fever. Study of these rodents as one link in the life cycle of the ticks will be necessary before their full importance as disease carriers can be reliably determined. A more conspicuous link in the chain is the dog, which brings adult ticks into the home, where they become a menace to health.

FOOD HABITS RESEARCH

Appointment Terminated.--The appointment of Ross O. Stevens as cooperative agent was terminated on June 12, because of the reduction in funds for the next fiscal year. Mr. Stevens has accepted a position in the emergency reforestation work with headquarters at Raco, Mich.

Investigates Alleged Damage by Armadillos.--E. R. Kalmbach has been in Texas since late in May studying the armadillo, particularly with reference to its alleged destruction of quail eggs.

DISEASE INVESTIGATIONS

Confers on Progress of Game-Bird Disease Studies.--On June 6, Dr. Shillinger conferred with Dr. L. C. Morley in Richmond, Va., on the progress being made there in the study of upland-game-bird diseases and their control. Arrangements were made for building additional holding pens for test birds and animals, the Virginia State Department of Agriculture and Immigration having made additional space available to the Bureau. Game bird hatcheries in the vicinity of Richmond report a large egg production this season with a high percent of hatchability.

Addresses Meeting.--At a meeting of the California State Veterinary Medical Association held in San Diego on June 19 and 20, Dr. F. D. McKenney discussed the work being done by the Bureau on diseases of fur animals and wild life, illustrating his talk with a set of lantern slides showing various abnormalities of wild life.

Reports Apparent Increase of Tularemia.--A rapid spread of tularemia among rabbits appears to be occurring in some sections of the North Central States, reports Dr. R. G. Green. In connection with the disease investigations carried on cooperatively by the Bureau and the University of Minnesota, Dr. Green has for some time been collecting samples of rabbits and noting the occurrences of tularemia. Recently four of a lot of 20 taken near Lake Alexander, in northern Minnesota, were found to be affected with this disease. Ticks also have been taken and used in studies conducted with guinea pigs as test animals. Seven of 20 composite samples made of 100 ticks each and injected into guinea pigs were recently shown to be positive for tularemia. Dr. Green reports that a large percentage of the test animals die of the disease. The spread of tularemia that thus seems to be indicated is not unexpected, says Dr. Shillinger, in view of the dense population of snowshoe rabbits that has been developing in the North Central States during the last few years.

FUR RESOURCES

Presents Paper on Fox Disease.--At a meeting of the New England Mink and Fur Breeders Association held in Portsmouth, N. H., on June 14, Dr. Karl B. Hanson, in charge of the United States Fur Animal Experiment Station, Saratoga Springs, N. Y., presented a paper entitled "Some Studies of Lungworm Infestation in Foxes, Especially as Regards Confinement on Elevated Wire Floors in Its Prevention and Control." The paper was supplemented by charts showing comparative results obtained with the use of different types of pen.

Visit Fur-Dressing and Dyeing Plants.--On May 16, Mr. Ashbrook and Chas. E. Kellogg visited in Newark, N. J., one of the largest fur-dressing and fur-dyeing plants in the United States, observing the various steps and processes in handling and dyeing muskrat skins. While in Newark Mr. Ashbrook and Mr. Kellogg also visited another dressing and dyeing plant and an establishment where furs are cleaned by a special patented process.

Samples of Standard Karakul Skins Purchased.--In New York Mr. Ashbrook recently selected a representative skin from each class of broadtail and Persian lamb skins to be used in the cooperative Karakul experimental work being carried on with the Bureaus of Animal Industry and Home Economics. Mr. Ashbrook and Mr. Kellogg also examined some 250 skins produced by a breeder of Karakul sheep in Texas. Fifteen of the better skins were brought to Washington for more careful study and for examination by cooperators in this work in the Bureau of Animal Industry.

To Study Value of Skins from Young Rabbits.--To determine the relation between the age of young rabbits and the suitability of their skins for fur, plans are under way to have experts in the fur trade examine approximately 125 such skins being obtained at the Rabbit Experiment Station, Fontana, Calif. The skins will be appraised in the raw, after dressing, and after dyeing. Several New York firms will cooperate in the study.

Degree Based on Fur Experimental Work.--Frank R. Smith, agent, in charge of the field station at Church Creek, Md., received his master's degree from the University of Maryland on June 3, the title of his thesis being "Investigation of the Life History and Habits of the Muskrat, Fiber zibethicus macrodon Merriam, under Natural and Controlled Conditions." This thesis is based on Mr. Smith's findings in experimental work during the past two years at Church Creek. Mr. Ashbrook was a member of the examining committee.

Experimental Work Summarized.--Preliminary results of two experiments in rabbit feeding, which covered a 2-year period at the Rabbit Experiment Station, have recently been summarized. Data obtained on 295 litters, totaling 1,540 young up to weaning age, show that the rabbits averaged 3.127 pounds at 56 days of age. Fifty-seven percent of all the litters weaned included 6 or more young, an exceptionally good record. Of the 48 does started on this experiment, 41 were used throughout the 2-year period.

PREDATORY ANIMAL AND RODENT CONTROL

Leadership in Montana Consolidated.--Because of the need for economy, making it necessary to combine projects wherever possible, the predatory-animal and the rodent-control work in Montana has been consolidated, effective July 1, under the leadership of R. E. Bateman, who has been in charge of predatory-animal control in that

State since October 1, 1915. O. E. Stephl, formerly in charge of the rodent-control work in that State, will act as Mr. Bateman's assistant, with headquarters at Miles City. According to present plans, E. C. Cates, with headquarters at Bozeman, and L. M. Cheney, at Great Falls, will supervise the work in groups of counties, the assistants being so placed that travel expenses will be minimized.

Relation of Rodents to Typhus Fever Discussed.--The Texas State Department of Health recently issued an interesting pamphlet entitled "Typhus Fever in Texas," which discusses the symptoms of the disease, the role of the rat as a carrier, and the reported cases by months since 1924. By emphasizing, as it does, the necessity of antirat campaigns similar to those conducted by L. C. Whitehead, leader of our rodent-control work in Texas, the pamphlet should prove a valuable aid in educating the public in means of preventing the disease.

Coyote Dens in Railroad Embankment.--Leader Charles G. Poole, of the California district, reports that Hunter A. A. Traub recently discovered a coyote den in a culvert beneath the tracks of the Pacific Electric Railroad at Hollydale, Calif., over which cars run about every 10 minutes. The den was about 50 yards from an inhabited house and close to a boulevard on which hundreds of people travel each day. That coyotes thus live in town and hunt in the country indicates their versatility.

Huge Bear Trap Found in Northwest.--Leader Leo K. Couch, of the Washington district, has on display a huge bear trap measuring 6 feet from end to end, having a jaw spread of 20 inches, and weighing 100 pounds, which was recently found on Chambers Prairie. The trap is hand-forged and is estimated to be about 75 years old.

LAND ACQUISITION

Migratory Bird Conservation Commission Reorganized.--With the change in administration the new members of the Migratory Bird Conservation Commission are: Secretary Wallace, chairman; Daniel C. Roper, Secretary of Commerce; Harold L. Ickes, Secretary of the Interior; Senator Key Pittman, of Nevada; and Representative Roy O. Woodruff, of Michigan. Senator Peter Norbeck, of South Dakota, and Representative Sam D. McReynolds, of Tennessee, both former members, are continued.

Attends Condemnation Proceedings.--Mr. Dieffenbach returned to Washington on June 22 from the Upper Mississippi River Wild Life and Fish Refuge, where he examined lands included in a condemnation case heard in Winona, Minn.

Completes Special Survey on Refuge.--Charles S. Cook, after completing his special survey assignment on the Upper Mississippi River Refuge, left there June 16 for his headquarters at Kansas City, Mo.

Appointment Terminated.--The appointment of Chalmer Jackson, transitman on the Upper Mississippi River Refuge, was terminated June 28 because of lack of funds.

Crescent Lake Refuge Area Increased.--On June 9 the purchase of an additional 2,000 acres was consummated within the Crescent Lake Migratory Bird Refuge, Nebr. The total acreage now under jurisdiction is 39,093, of which 173 acres constitute public lands set aside by Executive order, and the remainder, purchases from private individuals.

GAME AND BIRD CONSERVATION

Inspects Reservations.--En route to Vancouver, British Columbia, to attend the meeting of the Western Association of State Game and Fish Commissioners held on May 18 and 19, Mr. Sheldon visited the Nine Pipe and Pablo Reservations, Mont., in company with United States Game Protector W. H. Ransom and United States Reservation Protector Robert S. Norton. On the return trip from Vancouver, Mr. Sheldon visited the National Bison Range, near Moise, Mont.

Drought in New Mexico Serious.--United States Game Protector B. R. Britton, on May 20, reported that drought conditions in northern New Mexico were becoming the most serious since 1905. Little moisture, he said, had fallen for several months and some of the lakes and the greater part of the water holes were dry. The water level in one lake was so low at one time that many fish had died and had been tossed out on the bank by the wind. United States Deputy Game Warden A. T. Rainwater noted also a number of sick and dead ducks on the shore. The conditions described represent an ideal culture medium for the development of botulism, which may have caused the death of the ducks.

Educational Cooperation by Game Protector.--Through the cooperation of United States Game Protector W. H. Ransom in the loan of Biological Survey bulletins and other publications on birds, the Fortnightly Study Club of Spokane, Wash., has broadened its program of bi-weekly discussions to include various phases of wild-life conservation. Mr. Ransom reports that the portions of the programs devoted to these topics are enthusiastically received and enjoyed by the club members, particularly those on birds, bird migration, and bird sanctuaries.

Fined \$1,800 for Shipping Quail.--After pleading guilty to seven counts of an indictment charging him with interstate transportation of live quail contrary to the Migratory Bird Treaty Act, M. E. Bogle, of San Antonio, Tex., in Federal court at Memphis, Tenn., was fined \$1,800 recently and sentenced to serve 18 months in jail, the jail sentence to stand suspended, however, on payment of fine. The defendant admitted having shipped to other States quail that had been trapped illegally in Mississippi. Section 4 of the Migratory Bird Treaty Act prohibits the interstate shipment of birds captured or shipped in violation of State law. In fighting against removal from Texas to Tennessee for trial, Bogle sought release by a writ of habeas corpus. When this was denied, he appealed to the United States Circuit Court of Appeals for the Fifth Circuit, which sustained the action of the lower court in remanding him to custody of the marshal. He then petitioned the United States Supreme Court for a writ of certiorari, but the petition was denied.

Surf Scoters on Cape Romain.--Acting Supervisor Harold F. West, in charge of the Cape Romain Migratory Bird Refuge, S. C., reports that while conducting visitors over the refuge on May 2, he observed and identified two surf scoters at the mouth of a small creek. These were the first that had been noted at the refuge.

Royal Terns Numerous at Cape Romain.--The royal terns on the Cape Romain Refuge have moved to new nesting grounds about three-fourths of a mile east of last year's site, which puts them on ground beyond the reach of high tides. More than 75 percent of some 5,000 nests on this refuge were destroyed last year by high water.

On May 30, Mr. West counted approximately 6,000 eggs in the Cape Island royal-tern colony, which consists of about 12,000 birds. Many least terns also are on the refuge. The adult pelicans, with few exceptions, have deserted Sandy Point, as the extremely high tides have destroyed all their nests.

White Pelicans at St. Marks.--A number of white pelicans have been seen this spring and summer at St. Marks Migratory Bird Refuge, Fla. These birds were not observed on the area during these seasons last year.

White Buffalo, "Big Medicine," Born at Bison Range.--An albino buffalo was born this spring on the National Bison Range, Mont., reports Reservation Protector Robert S. Norton. The white calf, discovered on May 19 by Clarence Young, range foreman, is one of about 75 young born so far this year in the herd of more than 400 animals. Few albino buffalo have ever been observed. "One or two in a lifetime was the utmost that any hunter secured," says Ernest Thompson Seton, and Dr. W. T. Hornaday tells that he "met many old buffalo hunters, who had killed thousands and seen scores of thousands of buffalo, yet never had seen a white one." According to E. Douglas Branch there was "only one white animal in the five million and more bison of the southern herd." The Indians looked upon an albino buffalo with awe, considered it "big medicine," and for a good skin paid the price of 10 or 15 horses. The white man also was willing to pay a high price for an albino skin. Branch tells that the single albino of the southern herd fell to the gun of a plainsman, who sold it for \$1,000. "We are much interested," says Mr. Redington, "in having in our herd an example of a variation so rare as the white buffalo. When only one was known in a herd of more than five million, it is particularly interesting that we should have this 'big medicine' in a herd of about 500 animals."

Report Young of Buffalo and Mountain Sheep.--There are 33 buffalo calves at Wind Cave Game Preserve, S. Dak., 10 at Niobrara Reservation, Nebr., and 2 at Sullys Hill Preserve, N. Dak. Nine mountain-sheep lambs have been seen at the National Bison Range.

Visit Chase Lake and Stump Lake.--United States Game Protector Floyd Johnson visited Sullys Hill Game Preserve, N. Dak., during May, and with Wesley D. Parker, protector of the preserve, visited Chase Lake and Stump Lake Bird Refuges, N. Dak. Few water birds were seen on the refuges, but many were observed along the road wherever there was water. During May, Mr. Parker reports, 1,673 persons with 270 cars visited the Sullys Hill preserve.

Elk Linger on Winter Refuge.--Protector Almer P. Nelson, of the Elk Refuge, Wyo., reports that this spring a large number of the elk did not follow their old habit of leaving the winter refuge and other valley lands and migrating toward their summer range with the melting of the snow. The local State game wardens and Protector Nelson this spring have made three elk drives from the refuge and adjoining ranches. They began at a meadow near refuge headquarters, gathering the elk from adjoining ranches and moving them north to the Flat Creek and Sheep Creek foothills. The last large drive was made on May 17, five men on horseback driving approximately 1,800 elk from the meadow land. Many of these elk, however, did not remain in the hills but returned to the alfalfa fields. During the last three days of May only about 30 elk returned, indicating that the animals would soon be gone for the season.

Reports Observations on Charles Sheldon Refuge.--Ernest J. Greenwalt, in charge of the Charles Sheldon Wild Life Refuge, Nev., reports on May 17 the rare sight of deer and antelope grazing together on the same small flat. Sheepherders in Long Valley are reported to have seen antelope fawns on May 3, 12 days ahead of the first date on which they had previously been noted. The first doe with fawns seen on the refuge was on May 27. During a light rain at 10 p.m., on May 11, a sage thrasher was heard in full song. According to Mr. Greenwalt, these birds are often heard at this season until long after dark, but a complete song at 10 o'clock on a dark night is a rare occurrence.

Waterfowl Breeding Conditions Excellent on Upper Mississippi Refuge.--A stage of water the most uniform and favorable to waterfowl within recent years has prevailed on the Upper Mississippi River Wild Life and Fish Refuge, reports Superintendent Ray C. Steele. The official gage readings taken at La Crosse, Wis., show that at no time between April 20 and June 1 did the level vary more than 0.7 foot. This situation has been maintained by precipitations of marked regularity. As a result of this condition there has been an increase of nesting birds throughout the length of the refuge. It is the opinion of Ranger Cheney that more ducks have been nesting this season in his district, which extends from Dubuque, Iowa, to Rock Island, Ill., than during any season in the last ten years.

Free Garden Permits Issued to Needy.--By an order of the Secretary, the Superintendent of the Upper Mississippi Refuge issues without charge permits to cultivate for domestic use suitable areas on the refuge. Only needy persons who have not the means to obtain garden plots elsewhere are eligible for such permits. As a consideration for such privilege and upon being furnished seed by the Government, permittees may be required to plant some sunflower, kafir-corn, or hemp and leave the crops unharvested as a source of food for game.

In Washington.--E. C. Hotchkiss, assistant superintendent of the Upper Mississippi River Refuge, is in the Washington office conferring with officials of the Bureau on matters connected with the refuge and assisting in the conduct of emergency conservation work.

Alaska Game Law regulations effective on July 1 include amendments providing greater protection for bears and moose and modifying trapping restrictions. The major amendments are summarized as follows: To safeguard against unwarranted killing of large brown bears in summer, when their pelts are valueless for trophies, a close season from June 20 to September 1 has been established throughout the coastal range of these animals. The limit in this area has been restricted to 2 a season. Publicity in unusual volume in regard to this interesting species has resulted in an increasing number of people planning to obtain trophies or to photograph the animals in their native haunts, especially along the salmon streams. For the safety of the uninitiated, the regulation requiring that photographers as well as hunters of these bears be accompanied by registered guides has been clarified and is continued in force. Former provisions permitting residents to protect life and property have also been continued in effect. To extend the limits of an inviolate sanctuary where the several closely related subspecies of the large bears may roam unmolested, an area of 1,910 square miles adjacent to and supplementing the Glacier Bay National Monument has been closed to bear hunting. The boundaries of the area, including the monument, follow closely those suggested for the proposed extension of the national park, to include about 3,730 square miles. Certain islands lying close inshore in

southeastern Alaska that are used for breeding purposes by moose have been closed to the hunting of these animals. Trapping restrictions have been liberalized, economic conditions making it desirable to afford residents the maximum benefits consistent with proper maintenance of the breeding stocks of the various species. In response to appeals from interested local sportsmen, the closed area for the protection of introduced buffalo in the Big Delta section has been reduced slightly. The reduction, however, will not lessen protection to the buffalo but will permit other uses of the area eliminated.

Importations.—Several large and interesting shipments of birds and mammals arrived at New York during the month, including a shoebill (Balaeniceps rex), 2 saddle-bills (Ephippiorhynchus senegalensis), and 8 bustards (Houbara undulata), from Africa, which arrived from Port Said, Egypt, on June 7; 2 red-headed tanagers (Calospiza desmaresti) and 8 black and green tanagers (Calospiza nigriviridis) from La Guaira, Venezuela, on May 30; and 343 rhesus monkeys from Calcutta, India, on May 17. A permit was issued also for the entry at Los Angeles, on June 5, of a large shipment from the Malay Peninsula containing 17 species of mammals and 12 of birds.

ADMINISTRATION

Drastic Limitation Placed on Expenditures.—Funds available to the Biological Survey for expenditure during the fiscal year 1934 are limited to \$1,017,261 a reduction of 25 percent from the 1934 appropriation and 45.3 percent from the 1932 expenditures. The figures for the new year, finally obtained on July 12, are based upon actual cash withdrawals; that is, accounts paid and checks returned to the Treasury within the fiscal year. Subappropriations are shown in the following tabulation:

Appropriation items	Appropriation for 1934	Cash withdrawal limitation	Reduction from 1934 appropriation, percent	Reduction from 1932 expenditures, percent
Salaries and Expenses:				
Administration.....	\$ 76,865	\$ 69,297	9.8	16.2
Maintenance of reservations.....	75,000	50,000	33.3	46.2
Food habits research	75,000	71,640	4.4	29.4
Predatory-animal and rodent control.....	530,000	382,981	27.7	32.0
Fur resources.....	55,000	49,363	10.2	20.8
Biological investigations.....	85,000	66,279	22.0	41.1
Protection of migratory birds.....	198,190	149,206	24.7	29.2
Alaska game law.....	90,000	64,000	28.8	39.3
Upper Mississippi River Refuge:				
Administration.....	43,200	30,584	29.2	32.4
Land acquisition.....	18,500	10,018	44.7	77.9
Bear River Refuge: Administration.....	20,000	14,700	26.5	24.6
Migratory-bird conservation refuges.....	89,525	59,193	33.7	85.2
Cheyenne Bottoms Refuge.....	-	-	-	100.
Total.....	1,356,280	1,017,261	25.0	45.3

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No. 7

GENERAL NOTES

Two Veteran Scientists Retire.--Vernon Bailey and Dr. T. S. Palmer, veteran scientists of the Bureau, retire on July 31, Mr. Bailey after 46 years service and Dr. Palmer after 44 years. "The retirement of these biologists, so well known in the scientific world, here and abroad, will be distinctly felt in the Biological Survey," said Mr. Redington in a statement to the press on July 20, "but both will continue to be influential in work along lines with which the Bureau is concerned. Free from official duties, each has before him much productive effort in the sciences of ornithology and mammalogy and in the conservation and perpetuation of our valuable resources in wild life." Both will be honored at a farewell gathering now being arranged by fellow employees in the Bureau.

Vernon Bailey

Vernon Bailey, chief field naturalist of the Bureau, rated in "American Men of Science" since 1910 as among the thousand leading scientific men of the country, has achieved wide recognition for his studies of the geographic distribution of mammals, birds, and plants. His work in building up the Survey's collections and files of information is especially noteworthy. Practically every season since Mr. Bailey's first service has been marked by his field work in some part of the United States, and wild-life studies have taken him to every State of the Union and to Mexico and Canada. He has conducted biological surveys of Texas, New Mexico, North Dakota, and Oregon, and has published reports on three of these, on the mammals of Glacier National Park, and on the animal life of the Carlsbad Caverns, and on that of Yellowstone National Park. On the pocket gophers and on the ground squirrels of the Mississippi Valley he has prepared special publications based on his field work, and has revised the classification of rodents in these and other genera. Only recently Mr. Bailey's "Mammals of New Mexico" was added to the North American Fauna Series. At present, as joint author with Dr. Florence Merriam Bailey, his wife, he has in press a work on the wild life of the Mammoth Cave region of Kentucky. His work on Oregon has not yet been published.

Mr. Bailey has also been widely recognized for his efforts in behalf of the humane treatment of animals, especially because of the traps he has invented to capture them alive and unhurt. He designed and perfected the Biological Survey Beaver Trap, now in wide use in connection with restocking operations and also the Foothold Trap, for both of which he has received prizes awarded by the American Humane Association. The Foothold Trap is being developed for use in capturing a variety of mammals and birds.

A native of Michigan, Mr. Bailey was first employed in the Department as a special field agent in 1887, when he was 24 years old and living in Minnesota, and in 1890 he gained his present title of chief field naturalist. From 1906 to 1913 he was in charge of what is now the Division of Biological Investigations.

Mr. Bailey is president of the American Society of Mammalogists and a former president of the Biological Society of Washington (D.C.). He is also a Fellow of the American Association for the Advancement of Science and a member of the American Ornithologists' Union, the American Forestry Association, the Cooper Ornithological Club, and other societies interested in wild-life study and conservation. He is a member of the scientific consulting board of Nature Magazine.

Dr. T. S. Palmer

Dr. Theodore Sherman Palmer is noted for his activities in game protection and is widely known among naturalists of this and other countries as a zoological historian and biographer and an authority on the nomenclature of mammals. He was chairman of the committee that prepared regulations under the migratory-bird law of 1913, and he prepared the preliminary draft of the Migratory Bird Treaty of 1916. Through his great interest in extending the effectiveness of legislation for bird and game protection, Dr. Palmer on numerous occasions has served the interests of wild life and of the Biological Survey in drafting and administering protective regulations. He was instrumental in initiating legislation governing importations of game and other wild animals and birds from foreign countries and has cooperated with officials of the Customs Service in drafting regulations. He originated the present system of Federal publication of the game laws and open-season posters and of directories of game-protective officials and organizations, and the numerous official publications of the Biological Survey on trends in game conservation and in legislation for the protection of wild life, some of which have been translated and published abroad. Monumental among his published writings is his "Index Generum Mammalium", issued in 1904 as North American Fauna No. 23. He is now completing a supplement to it.

Dr. Palmer, a native of California, was graduated from the University of California in 1888 and came to the Department the following year, at the age of 21. In 1895 he completed medical studies and was granted his M. D. degree by Georgetown University. He early engaged in field studies and has visited most parts of the United States, and for 5 months in 1891, as first assistant ornithologist, he was acting in charge of the Death Valley Expedition. He was assistant chief of Bureau from 1896 to 1902, and from 1910 to 1914 and acted as chief over extended periods, including the time when the chief, Dr. C. Hart Merriam, was in Alaska as a member of the Bering Sea Commission. From 1900 to 1916, Dr. Palmer was in charge of the Division of Game Preservation, and since the passage of the Lacey Act in 1900 he has been in charge of the regulation of the importation of foreign birds and mammals.

Since 1917 Dr. Palmer has been secretary of the American Ornithologists' Union, in which capacity he is noted for his comprehensive statements regarding the membership and accomplishments of the Union, published annually in The Auk. Dr. Palmer is a Fellow of the Union, and also of the American Association for the Advancement of Science and of the California Academy of Science. He has been first vice president of the National Association of Audubon Societies since 1905, and since 1924 has been president of the Audubon Society of the District of Columbia. He has been serving as vice president of the American Society of Mammalogists since 1927, having declined, after election in 1933, to serve as president. Dr. Palmer is a corresponding member of several foreign ornithological societies, including the Ornithologische Gesellschaft, Bavaria, and the Royal Hungarian Institute of

Ornithology, and is an honorary member of the Society for the Preservation of the Fauna of the Empire (London), the Transvaal Game Protective Society (South Africa), and the International Association of Game, Fish, and Conservation Commissioners. He is also a member of the American Bison Society, the Society of American Foresters, the National Parks Association, and many other scientific and conservation organizations.

Dr. Nelson Leaves for Michigan.--Dr. E. W. Nelson, who has been studying quail and jaguars in the Bureau's Museum laboratories since early in May, has left to spend the remainder of the summer near Marquette, Mich.

ADMINISTRATION

Transfers Obviate Dismissals.--Ten clerical employees of the Biological Survey in Washington have been transferred to the Agricultural Adjustment Administration, two at their own request, and the Bureau has filled only one of the vacancies, thus obviating dismissals of clerks in the Washington offices because of reductions in appropriations. Those transferred are: Gary E. Turner, of the Editorial Office; Alice W. Hall, of the Division of Administration; Walter J. Huntt, of this division's Accounts Section; Mrs. Roby W. Stehr, of its Mails and Files Section; Mrs. Bessie W. Palm, of the Division of Biological Investigations; Mrs. Marion H. Reeves, of the Disease Investigations Project; Mrs. Beulah T. Ostendorph, of the Division of Predatory Animal and Rodent Control; Gladys B. Wallace and Gladys R. Nordgard, of the Division of Land Acquisition; and Mrs. Rosemary R. Logsdon, of the Division of Game and Bird Conservation.

Miss Hall, who had handled the personnel work of the Bureau for 4 1/2 years, is now general assistant in the Personnel Section of the Agricultural Adjustment Administration, a promotion and advancement in grade. Pauline M. Brett, who had been assisting Miss Hall, has taken over the personnel work, and Miss Brett's former position has been filled temporarily by the transfer of Mrs. Lois Jean Rissman from the Division of Land Acquisition.

Mrs. Ruth H. Gloyd has been transferred from the Bureau of Plant Industry to fill the position vacated by Mrs. Ostendorph, who requested a transfer in anticipation of an opportunity to utilize her knowledge of law.

BIOLOGICAL INVESTIGATIONS

Studies Painted-Desert Region.--E. A. Goldman during June carried on investigations in Arizona, mainly in the Painted-Desert region, in furtherance of a biological survey of the State. On the Kaibab Plateau he noted conditions affecting the deer, and he studied the overstocked deer and antelope ranges on the Coconino National Forest.

Studies Louisiana Birds.--Making a study of Louisiana birds in cooperation with the State Department of Conservation, Dr. H. C. Oberholser during June, visited the principal tern, gull, and pelican colonies along the Louisiana coast, from the eastern boundary of the State to the Sabine River, including those on the Breton Island, Tern Island, and East Timbalier bird refuges. Dr. Oberholser also observed several colonies of water birds in the interior, including white ibis, anhinga, and heron colonies. After completing this work in Louisiana he visited several waterfowl

areas in the coast region of Mississippi, in company with Hunter Kimball, State Director of Conservation, at whose request the Mississippi visits were made.

Attends Ecological Meeting.--As a member of the National Research Council Committee on the Ecology of Grassland, Dr. W. P. Taylor recently attended a meeting of the committee at Austin, Tex. The members discussed the need of additional studies on the relation of rodents, game species, birds, predators, and other animals to range and grasslands and developed plans for promoting the organization of range-study centers in Arizona, Texas, Oklahoma, Nebraska, Illinois, North Dakota, and Saskatchewan. The committee considered the present cooperative program in Arizona as being perhaps the most advanced development in this field of research.

Plane for Expedition Crashes in Test Flight.--An airplane intended for cooperative use in studying waterfowl conditions in northern Saskatchewan crashed recently from an altitude of 2,000 feet near North Battleford, killing the pilot and the two mechanics, according to a report from L. J. Goldman. The plane, he writes, had been overhauled and was being given a rigid test.

French Show Interest in American Beaver Culture.--Based on Technical Bulletin 21, Beaver Habits and Beaver Culture, by Vernon Bailey, a recent article in *Science et Voyage*, published in Paris, France, describes the habits and status of beavers and reproduces 13 illustrations from the bulletin. An additional illustration from the bulletin is reproduced on the cover of the magazine. In concluding his article the author, Christian de Caters, expresses the hope that American beaver "farms" will prevent the disappearance of these "ingenious rodents and architects, which built dams long before anyone ever thought of that of Assouan or of Muscle Shoals."

FOOD HABITS RESEARCH

Studies Game-Management Projects.--In connection with a vacation trip to Washington State, J. Paul Miller recently made brief stops in Michigan and Wisconsin to acquaint himself with game-management projects being carried on in these States.

Investigates Eel-Grass Situation.--Clarence Cottam during the last two weeks of June investigated the present status of the eel-grass situation at points along the coast from New Jersey to North Carolina. The plant appears to be making good recovery in some areas, and Mr. Cottam reports that there has also been considerable improvement in conditions for aquatic plants in Back Bay, Va., and Upper Currituck Sound, N. C., which have been seriously damaged by pollution.

Investigates Effect of Garbage-Disposal Plant on Vegetation.--F. M. Uhler and Arnold L. Nelson spent two days in the latter part of June studying aquatic plants in the vicinity of Cherry Hill, Va., where a garbage-disposal plant of the District of Columbia is located. They report that complaints of damage caused by this disposal plant to the vegetation on which waterfowl subsist do not seem well founded.

Armadillo Not Guilty in Most Cases.--The armadillo studies carried on in Texas during June and late in May by E. R. Kalmbach, in charge of the Denver laboratory, indicate that other mammals, particularly skunks, were in most cases the culprits in egg destruction attributed to the armadillo. Mr. Kalmbach made his investigations about 50 miles north of Houston. Two hundred "dummy" nests containing 4 hen's eggs each were used to obtain information regarding the egg eaters. At the close of the study no definite instance of egg destruction by the armadillo had been revealed, although in many cases circumstantial evidence in the form of tracks, burrowings, and other signs pointed toward the armadillo.

Address Changed.--To curtail expenses the Denver (Colo.) food-habits research laboratory has vacated its rented quarters at 1441 Welton Street. Its temporary address is: In care of Control Methods Research Laboratory, 527 Custom House, Denver, Colo.

FUR RESOURCES

Will Move Muskrat Station to Blackwater Refuge.--The Reforestation Act for relief of unemployment makes it possible to move the muskrat experiment station from Church Creek, Md., to the Blackwater Migratory Bird Refuge, Md. Under P. J. Van Huizen, acting supervisor of the refuge, and Frank Smith, agent at the experiment station, a detail of men from the Civilian Conservation Corps is clearing the land for pen construction, building roads, and fencing the proposed site for this work. Within a few weeks 40 pairs of muskrats, used in breeding experiments, will be transferred from private property to the new location.

DISEASE INVESTIGATIONS

Addresses Veterinarians.--En route to Richmond, Va., to inspect the game-bird-disease research project, Dr. Shillinger, on July 13, spoke at a banquet of the Virginia State Veterinary Medical Association at Fredericksburg, and on July 21, he addressed the New Jersey State Veterinary Association at Atlantic City. On both occasions he discussed the Bureau's work on wild-life diseases, illustrating his talks with lantern slides of abnormalities.

Back-Yard Laboratory Successful.--Dr. L. C. Morley, of Richmond, Va., reports a fair egg production and a good ratio of hatchability at the miniature quail plant established in his back yard last winter. Birds necessary for experimental work, he says, are being produced at a minimum cost and are providing much information on the losses encountered in producing quail under artificial conditions.

To Make Comparative Study of Disease Conditions.--A cooperative expedition under the joint auspices of the Biological Survey, the University of Minnesota, and the Minnesota State Department of Conservation, led by Dr. R. G. Green, of the University, Bureau cooperator on disease investigations, is spending about two months in the wilderness of north central Canada in the region west of Hudson Bay, for the purpose of gaining additional information on the disease conditions

causing waste of wild life, especially the game and fur species. Material collected will be sent to the research laboratory of the University, where it will be studied and compared with observations made on wild-life disease conditions in the North Central States. Arrangements have been made by the director of the Game and Fisheries Branch of the Canadian Department of Mines and Natural Resources to facilitate travel and handling of specimens.

PREDATORY ANIMAL AND RODENT CONTROL

Leaves for Field Inspection.--Mr. Young left Washington on July 26 for a field tour, during which he will inspect work in Arkansas, Oklahoma, Texas, New Mexico, and Arizona.

Organization Changes Made Necessary.--Owing to the drastic reduction in the appropriations allotted to the Division, it has been necessary to make several changes in the field organization to obtain the highest possible efficiency with the minimum of expense. The Idaho district has been transferred from the Pacific Region to the Mountain Region, as it can be more economically administered from the Denver, Colo., headquarters than from Portland, Oreg. Because of withdrawal of State cooperation the predatory-animal control work will be discontinued in South Dakota and Missouri. The rodent-control districts in the East have been extended so that contacts with the cooperating States can be made by the present personnel instead of only by correspondence or by occasional visits made by Regional Supervisor James Silver. Effective July 1, G. C. Oderkirk will supervise rodent-control work in the States of Indiana, Illinois, Wisconsin, Michigan, and Ohio; he will also have charge of rabbit control under the emergency conservation work in Minnesota. E. M. Mills will supervise rodent work in New England, New York, Pennsylvania, and New Jersey; Roy Moore in Mississippi, Louisiana, and Alabama; Carlyle Carr in Florida and Georgia; and A. E. Oman in North and South Carolina and Virginia.

Control Rodents on Indian Reservations.--The Bureau has developed plans for carrying on rodent control under the Emergency Conservation Act in accordance with a previous agreement with the Bureau of Indian Affairs. Supplies have been purchased and foremen appointed, and the work is well under way in practically all the Western States. Grain used in this work will be processed at the Bait-Mixing Station, Pocatello, Idaho.

Rabbit Bait Formula Perfected.--For the control of rabbits damaging forest plantings in the Lake States, research workers of the Biological Survey have recently perfected a bait formula, and an order is being placed for 16,000 pounds of the bait to be prepared at the Bureau's Bait Mixing Station, Pocatello. This bait will be distributed by Civilian Conservation Corps workers under Bureau supervision. Rabbits cause serious damage to the plantations in the Lake States area, and officials of the Forest Service report that these animals have seriously damaged 94 percent of the living white pine, 85 percent of the Norway pine, and 86 percent of the spruce on certain plantations in the Superior National Forest.

Move to Building C.--Headquarters offices for the Eastern Region were moved on July 20 from Building F to Building C. They are now located in rooms 1-307, 1-309, and 1-311, on the third floor of the first wing, adjacent to the Washington offices of the Disease Investigations Project.

LAND ACQUISITION

Prepare for Refuge Work by Conservation Corps.--A. A. Riemer returned to Washington on July 11 from an inspection trip to St. Marks Migratory Bird Refuge, Fla., and Swanquarter Migratory Bird Refuge, N. C., in connection with surveys to be made incident to the work planned there for the Civilian Conservation Corps. (See page 54.) Charles S. Cook and J. Ralph Campbell have been detailed to the Swanquarter refuge and Bert J. G. Tousey and James W. Whitehead to the St. Marks refuge to conduct the surveys.

Returns to Washington.--Robert M. Rutherford returned to Washington on June 30 from Winona, Minn., where he had been assisting in the preparation of a condemnation case.

Detailed to Forest Service.--The following employees of the Bureau engaged in land examination and appraisal have been detailed for an indefinite period to the Forest Service for field work in connection with its land-acquisition program: Harold W. Hicks, assistant land valuation engineer; Albert Smith, Jr., associate cadastral engineer; Daniel H. Janzen, Albert J. Rissman, Carey H. Bennett, Doren E. Woodward, and Howard J. Sargeant, junior foresters; Kenneth C. Kern and Oswald E. Recroft, transitmen; and James M. McQueen and Jack Y. Upham, under engineering aides.

Large Tracts Added to Refuge Lands.--During the last few months of the fiscal year 1933 several large tracts were added to refuge areas under the Migratory Bird Conservation Act. In the Upper Mississippi River Wild Life and Fish Refuge, 4,132 acres were paid for; three tracts of land aggregating 714 acres were purchased in the Long Lake Migratory Bird Refuge, N. Dak.; and title to the Arnold tract containing 965 acres in the Bamforth Lake refuge and to the Goetz tract of 1,248 acres in the Hutton Lake refuge, both in Wyoming, was conveyed to the United States. With the intermingled Government and State lands, Bamforth Lake and Hutton Lake refuges are now practically complete units. The largest single acquisition made recently consists of the Southern Pacific Railroad Co. lands that constitute the Salton Sea Migratory Bird Refuge in southern California. This transaction involved the purchase of 8,982 acres. With the intermingled public lands set aside by Executive order, the refuge now contains 45,560 acres.

GAME AND BIRD CONSERVATION

Advisory Board Meets.--The Advisory Board, Migratory Bird Treaty Act, met in the National Museum building, Washington, D. C., on July 10 and 11, with 19 members present.

Enforcement Personnel Cut.--Owing to the reduction in funds available for the enforcement of the Migratory Bird Treaty and Lacey Acts for the fiscal year 1934, it will be necessary to dispense with the services of three United States game protectors. On August 1, Protector S. W. Linebaugh, of Russellville, Ky., will retire at the age of 69 and Protectors B. R. Britton, of Socorro, N. Mex., and F. A. Johnson, of Watertown, S. Dak., will leave the service.

Mr. Linebaugh retires after having spent 22 years in the Federal service. He was appointed district inspector by the Survey on August 16, 1914, to supervise

the enforcement of the Federal migratory-bird law in Kentucky. He was instrumental in building up sentiment in favor of this law in his district and assisted in preparing material on which many of the early game laws of Kentucky were based. When the Federal migratory-bird law was superseded by the Migratory Bird Treaty Act in 1918, Mr. Linebaugh was designated United States game warden to carry on the enforcement work in Kentucky and Tennessee. He has always taken great interest in upland game, both migratory and nonmigratory, and has assisted in organizing several sportsmen's associations. He has held the office of president of the Kentucky Division of the Izaak Walton League of America for several years, is a member of the Kentucky Game and Fish Protective Association, and the Kentucky Pointer and Setter Club, and has been a prominent breeder and trainer of shooting dogs. He is one of the best-known field trial judges in the country. Prior to Mr. Linebaugh's connection with the Biological Survey he was in newspaper work, for some 20 years. He had been in the Internal Revenue Service of the Treasury Department in Kentucky from 1893 to 1896.

United States Deputy Dies.--Word has recently been received of the death of H. C. Holcomb, United States deputy reservation protector and United States deputy game warden, who assisted in protecting wild life on the Carlsbad (N. Mex.) Bird Refuge, which is within the Carlsbad reclamation project.

Civilian Conservation Camps Established on Refuges.--Under authority of the Act of March 31, 1933, "for the relief of unemployment through the performance of useful public work," the President, on May 29, approved the establishment of Civilian Conservation Corps camps on Blackwater Migratory Bird Refuge, Md.; Swanquarter Migratory Bird Refuge, N. C.; and St. Marks Migratory Bird Refuge, Fla. The work undertaken includes the construction of roads, trails, fire lines, lookout towers, wardens' cabins, dams and dikes for the development of ponds, and miscellaneous improvements. Peter J. Van Huizen is superintendent of the Blackwater Camp, William L. Birsch of the Swanquarter Camp, and Paul T. Kreager of the St. Marks Camp. By July 15 each camp had received its full quota of 200 men, enrolled for the period ending November 30, and the work at each camp is well under way.

Conservation Corps Worker Drowns.--Frightened when the wind carried some distance from shore the barge on which he was working, R. Wells, of Lucorma, N. C., a member of the Civilian Conservation Corps at the Swanquarter refuge, on July 13, jumped from the barge and drowned in an attempt to swim to land. Others on the barge were unable to save him.

Visit Bear River Refuge.--On June 18, the board of governors of the Brigham (Utah) Chamber of Commerce and the Box Elder County commissioners were escorted by Superintendent George E. Mushbach on an inspection tour of the Bear River Migratory Bird Refuge. They also inspected the road being constructed from Brigham to the refuge.

Rescue Young Fishes at Big Lake Refuge.--Protector Steven B. Crossley, of Big Lake Bird Refuge, Ark., has been rescuing numerous young fishes stranded in ditches drying up on the refuge. The fish came into the ditches during highwater in spring and did not leave as the water receded. Mr. Crossley seined the fish

and placed them in drainage ditches. On July 6, he thus rescued approximately 3,000 game fishes, including large-mouthed bass, sunfish, crappies, goggleeyes, and some small catfish. On July 8, he saved an additional 1,500 and also approximately 200 small frogs.

Thirteen Thousand Visit Sullys Hill During Year.--During the fiscal year ended June 30, 1933, visitors at Sullys Hill Game Preserve, N. Dak., numbered 13,786 persons, with 2,764 automobiles.

Motion Pictures Taken of Antelope.--E. J. Greenwalt, in charge of the Charles Sheldon Wild Life Refuge, Nev., reports that two photographers of the Extension Service of the Department took motion pictures of antelope on the refuge from June 20 to 28. The animals were widely scattered, and the men consequently did not succeed in obtaining pictures of any large numbers, but they made numerous "shots" of individuals and small groups.

Antelope Fawns Reared as Pets.--Two antelope fawns, a male and a female, on the Charles Sheldon Refuge, taken from their mothers on May 29 are being reared as pets at refuge headquarters. They are thriving and have become exceedingly tame. "Daylight," says Mr. Greenwalt, "always reveals them waiting at the gate for breakfast, and they are on hand for the evening bottle of milk long before the feeding hour. Each evening they race up and down the meadow and around the fence, bounce through the rocks on the hillside, and make long jumps across the dry creek bed. They are friendly with two domestic lambs, the dog, a saddle horse, and the baby; they come bouncing off the side hill when called, follow close at the heels of the person who feeds them, and walk into the house at every opportunity. Since fawns reared in captivity and later released about the headquarters migrate with the wild herds at the approach of winter, it seems possible that if a number were thus raised and suitably marked, accurate observations could be made of the migration paths and winter range of the antelope accustomed to summer on the refuge."

Sentenced to Jail for Violating Game Laws.--In Federal District Court at Sacramento, Calif., on June 14, Judge Frank H. Kerrigan imposed a fine of \$500 and a jail sentence of 90 days on J. W. Triplett, of Colusa, for killing and possessing 169 wild ducks on January 22, 1933, during close season, in Butte County, Calif. The fine was remitted by the court, but the jail sentence was ordered to be served. Triplett was arrested on the night of the offense by State and Federal Deputy Game Wardens Taylor London and E. O. Wraith. It appeared that the defendant was killing the ducks for market purposes.

Importation Work in Charge of R.W. Williams.--With the retirement of Dr. T. S. Palmer (see page 47) the administration of the Lacey Act provisions governing the importation of foreign wild species is being consolidated with other law-administration work under the direction of R. W. Williams, assistant United States game conservation officer.

Resumes Inspection Duties.--B. S. Bowdish took over the work of inspection of foreign birds and mammals at New York on July 1, relieving Lee S. Crandall, who has examined foreign shipments since January 1, 1933.

Parrot Fever Again Reported.--A case of psittacosis, or parrot fever, was reported from Baltimore, Md., on July 11. The victim was a woman, 29 years old. It was said that her husband had captured a parrakeet in his chicken yard a few weeks before and kept it as a pet. After investigation the City Health Department reported that it was a positive case of parrot fever.

Penguins Imported from Africa.--Among the interesting shipments received during the month was a consignment of 6 jackass penguins (Spheniscus demersus), which arrived at New York on July 13 from South Africa, via London, for the National Zoological Park.

ADDITIONAL GENERAL NOTES

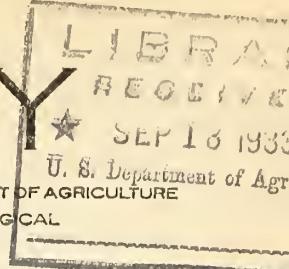
Resume Outside-Publication Citation in THE SURVEY.--Citations of articles by Bureau members appearing in outside publications, discontinued in THE SURVEY in May 1929 to avoid duplicating The Official Record, are being resumed because of the discontinuance of the latter on July 1, 1933. This information is also given a limited distribution throughout the Department in Agricultural Library Notes.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Cooke, M. T. Speed of bird flight. Auk 50: 309-316. July 1933.
Cottam, C. A pet cock pheasant. Bird-Lore 35: 148. May-June 1933.
----- Blue goose in North Carolina. Auk 50: 353. July 1933.
Green, R. G., and Shillinger, J. E. Relation of disease to wild life cycles. Amer. Game Conf. Trans. (1932) 19: 432-436. 1933.
Jewett, Stanley G. The season (ornithological); Portland (Oreg.) region. Bird-Lore 35 (3): 165-166. May-June 1933.
Kalmbach, E. R. Study of the economics of wild mammals and birds. Trail and Timberline (Colo. Mountain Club) 176: 77. June 1933.
McAtee, W. L. Fishworms "boiling out". Nature Mag. 22: 33. July 1933.
Mills, E. M. The control of moles. Rural New Yorker 92: 383. June 24, 1933.
Morley, L. C. Discussion (of paper "Prevention and control of disease in propagated game birds", presented by J. E. Shillinger). Amer. Game Conf. Trans. (1932) 19: 325-327. 1933.
Preble, E. A. Blatchley's latest book "My nature nook". Nature Mag. 20: 140. Oct. 1932.
Shillinger, J. E. Prevention and control of disease in propagated game birds. Amer. Game Conf. Trans. (1932) 19: 320-325. 1933.
Sperry, Charles C. Opossum and skunk eat bats. Jour. Mammal. 14 (2): 152-153. May 1933.
----- Some Colorado wild-duck food plants. Trail and Timberline (Colo. Mountain Club) 176: 79-80. June 1933.

THE SURVEY

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No. 8

GENERAL NOTES

Inspects Work in the West.—On July 29, Mr. Redington left Washington for the West, his first stop being in New Mexico, where he has been inspecting predatory-animal work in the mountains and examining areas reported to be overstocked with deer. He plans to visit also points in Arizona, California, and other western States.

Honor Mr. Bailey and Dr. Palmer.—Washington members of the Biological Survey and former members of the Bureau paid honor to Vernon Bailey and Dr. T. S. Palmer at a gathering in the Chief's office on August 17 and presented to each as remembrances a specially prepared memorial book and a walrus-hide traveling bag. Mr. Henderson opened the meeting by reminding present members of the Bureau of the basic work accomplished by Mr. Bailey, Dr. Palmer, and their associates during the early years of the Biological Survey. He spoke of the importance today of the foundations laid by them nearly half a century ago. In behalf of Mr. Redington and all members of the Bureau, Mr. Henderson expressed regret at the retirement on July 31 of Mr. Bailey and Dr. Palmer, but he assured them that their desks are still available at any time and that they will always be welcome in the Biological Survey. Mr. Henderson then introduced E. A. Goldman, chairman of the committee appointed by Mr. Redington for the occasion.

Mr. Goldman spoke of his associations with Mr. Bailey and Dr. Palmer and, acting as chairman, introduced Dr. A. K. Fisher, Dr. H. C. Oberholser, and Arthur H. Howell. Each of these close associates of the retired veterans in field and office work during early years of the Biological Survey spoke reminiscently, paid tribute to Mr. Bailey as a pioneer in mammalogy and to Dr. Palmer as a pioneer in wild-life conservation, and expressed a personal indebtedness and an appreciation of friendship and of guidance in their work.

Mr. Goldman then presented the parting tokens, reading from the memorial books the testimonials that were bound in each (together with a recent group picture of the Washington employees of the Bureau, photographs of the four chiefs, with all of whom Mr. Bailey and Dr. Palmer were associated, and autographs of the Washington personnel of each Division).

To Mr. Bailey, he read: "Presented as a token of esteem to Vernon Orlando Bailey, pioneer explorer and leader in the Bureau of Biological Survey, United States Department of Agriculture, life-long student and lover of wild life, eminent naturalist and writer, devoted champion of birds and mammals, friend and inspirer of humankind, loyal and helpful citizen, by his fellow-workers in the Survey, with whole-hearted wishes for health, contentment, and long-continued service."

To Dr. Palmer, he read: "Presented as a token of esteem to Theodore Sherman Palmer, associated since his youth with the Bureau of Biological Survey, United States Department of Agriculture, as field worker, administrator, counselor, and emissary, scientist and scholar of high attainments, active worker in scientific societies,

wild-life conservationist of worldwide eminence, formulator of protective legislation, molder of public opinion, biological biographer, historian, bibliographer, wise parliamentarian, eloquent speaker, and able strategist, loyal and helpful friend, by his fellow-workers in the Survey with whole-hearted wishes for health, contentment, and long-continued service."

Mr. Bailey expressed his amazement at hearing of his own many accomplishments "when interrupted in the middle of a busy life." During his years in the Biological Survey, he said, he had been doing the very thing he most wanted to do, yet he had enjoyed his friendships in the Bureau more even than his work. With much feeling he closed his remarks in an expression of gratitude.

Dr. Palmer related many incidents in connection with his varied services, emphasizing especially the means by which he had overcome obstacles for conservation that seemed insurmountable because of restrictions and delays. He said that though he could not always do the particular kinds of work he had expected to do when he came to Washington, he had found many other things to do and he had "had a lot of fun doing them." Stirringly exhorting the members of the Survey to achieve the rewards that come from interest in their work for its own sake, he said that such rewards never come from merely holding a job as a means of livelihood. He told of the personal interest he had always had in every member of the Bureau from the earliest days and expressed his gratitude for the interest shown him on this occasion.

Press Features Retirement Work of Scientists.--Four retired scientists of the Biological Survey are among those whose work was recently discussed in a Washington newspaper article entitled "Famous Scientists, Retired, Lose Pay But Continue Jobs." The writer, Thomas R. Henry, tells of the work now being done by Mr. Bailey, Dr. Palmer, Dr. E. W. Nelson, and Dr. A. K. Fisher, and the article also includes photographs of Mr. Bailey, Dr. Palmer, and Dr. Nelson.

Study Oil-Pollution Menace.--As a member of the Interdepartmental Committee on Oil Pollution of Navigable Waters, F. C. Lincoln, of the Division of Biological Investigations, is representing the Department in a study being made of measures to deal with the oil-pollution menace on the high seas. Other members represent the Division of Western European Affairs, Department of State, which has sponsored the committee; the Bureau of the Public Health Service, Department of the Treasury; Office of the Chief of Engineers, Department of War; the Geological Survey, Department of the Interior; and the Bureau of Fisheries, Department of Commerce. The committee held its first meeting on August 16 at the State Department.

Welfare Association To Open Cafeteria.--The Department Welfare Association will open a cafeteria on the sixth floor of the South Building early in October, announces A. M. Day, of the Biological Survey, president of the association. The occasion, according to present plans, will be celebrated at a general reception in the cafeteria quarters, when all Department employees will be invited to meet with the Secretary, the Assistant Secretary, and the Bureau Chiefs. With equipment costing about \$6,000 and a revolving fund of \$2,000, the unit to be installed first will accommodate about 350 persons at one time. A second unit of the same capacity will be added later. After the return of the original investment, profits from the cafeteria will be used to reduce employees' food costs and to provide funds for the

Welfare Association. This, it is expected, will eventually make the association self-supporting. The cafeteria will also serve as a laboratory for the Bureaus of Home Economics, Animal Industry, Agricultural Economics, and Plant Industry.

Official Publications have been received as follows:

"Poisoning Chipmunks." Leaflet Bi-1289, 1 p., July 1933. Received August 1.

"Raising Guinea Pigs." Leaflet Bi-1291, 2 pp., August 1933. Received August 24.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Bailey, Vernon. The importance of types and type localities. *Jour. Mammal.* 14 (3): 241-243. August 1933.

Jewett, S. G. The season (ornithological); Portland (Oreg.) region. *Bird-Lore* 35 (4): 219-220. July-August 1933.

Kelso, Leon. A note on the genus *Pulsatrix*. *Biol. Leaflet* 1: 1-2. July 25, 1933.

Lincoln, F. C. Mallard No. 555414 returns again. *Bird Banding* 4 (3): 156. July 1933.

Nelson, E. W., and Goldman, E. A. Revision of the jaguars. *Jour. Mammal.* 14 (3): 221-240. August 1933.

Oberholser, H. C. The season (ornithological); Washington (D.C.) region. *Bird-Lore* 35 (4): 221. July-August 1933.

Sperry, C. C. Autumn food habits of coyotes, a report of progress, 1932. *Jour. Mammal.* 14 (3): 216-220. August 1933.

----- Highway mortality of rabbits in Idaho. *Jour. Mammal.* 14 (3): 260. August 1933.

ADMINISTRATION

Promoted to Fill Vacancy.--Miss Johanna H. Corsack, clerk-typist in the Division of Game and Bird Conservation since October 1928, was promoted and transferred on August 15 to fill the stenographic vacancy created in the personnel office by the promotion of Miss Pauline Brett to personnel clerk. Through civil-service test Miss Corsack had qualified as a stenographer.

Resigns.--Mrs. Lois Jean Rissman, who had been recently detailed to the personnel office from the Division of Land Acquisition, resigned on August 5 to join her husband, Albert J. Rissman, recently detailed from the same Division to the Forest Service and now stationed on the George Washington National Forest, near Harrisonburg, Va.

BIOLOGICAL INVESTIGATIONS

Study Relation of Timber-Stand Improvements to Wild Life.--Dr. Bell and E. A. Goldman, at the request of the Forest Service and in company with representatives of that organization, spent August 8 making a preliminary survey of the effects on wild life of the timber-stand-improvement work at Camp Roosevelt in the Fort Valley region of Virginia, the first camp established under the Civilian Conservation Corps program.

The Forest Service wished to learn whether the work being done in cleaning, thinning, and improvement cutting was destroying the food sources and cover needed by the wild life of the region, particularly deer, squirrels, rabbits, raccoons, opossums, quail, ruffed grouse, and wild turkeys. After their preliminary survey, Dr. Bell and Mr. Goldman were of the opinion that the work already accomplished there had resulted in no serious damage to the wild life, and they offered suggestions that would be helpful in safeguarding wild-life interests in the future. At the request of Forest Service officials, arrangements have been made for E. A. Goldman and T. D. Burleigh to carry on a more extended study at the various C.C.C. camps in the Southeastern States, especially those on the George Washington, Monongahela, Cherokee, Nantahala, Pisgah, and Unaka National Forests.

Caribou Reported in Minnesota.--C. M. Aldous recently found the remains of a cow caribou that had evidently foundered in the snow last winter in the Red Lake district of northern Minnesota near the place where Mr. Aldous and Vernon Bailey observed caribou last year. The specimen was obtained for the Biological Survey collection. It was also learned from a reliable source that four other adult caribou and a calf had been observed during June in the locality.

Continues Investigation of Waterfowl Conditions.--L. J. Goldman, having completed his study of waterfowl conditions in northern Saskatchewan and in the vicinity of Edmonton, Alberta, is continuing his investigations in the southern part of the Prairie Provinces of Canada, where the hot, dry period early in June proved disastrous to young ducks.

Transferred to College, Alaska.--Owing to the reduction in appropriations, arrangements have been completed for the transfer of the headquarters of C. H. Rouse, senior forest ranger, from Nome to College, Alaska, for work at the Reindeer Experiment Station.

Makes Reconnaissance of Moose Range.--At the request of the Alaska Game Commission, L. J. Palmer, during the middle of July, made a reconnaissance of the moose range on the Kenai Peninsula to determine the range utilization, available feed, and trend of plant invasion. His report includes a review of the topography, the soil, and the plant succession, together with a discussion of the forage utilized by the moose and an estimate of the carrying capacity of the refuge and adjacent areas.

Observes Birds at Cape May.--While on a few days' vacation at Cape May, N. J., during the first of August, F. C. Lincoln, in company with his host, Dr. Witmer Stone, made a survey of the shorebirds in the vicinity. The Hudsonian curlew, Mr. Lincoln reports, was found in considerable numbers and displayed its usual wariness. Yellowlegs were fairly common over the marshes, one large flock of dowitchers was seen, and the smaller birds were plentiful. Several species of herons, including the American egret, the little blue heron, and the Louisiana heron, also were noted.

FOOD HABITS RESEARCH

Plan Improvements for Refuges.--A. C. Martin was at the Blackwater Migratory Bird Refuge, Md., from August 7 to 11, and Neil Hotchkiss at the St. Marks Migratory Bird Refuge, Fla., and the Swanquarter Migratory Bird Refuge, N.C., from August 7 to

19, studying conditions with a view to making recommendations for improvements to be carried out by the Civilian Conservation Corps.

FUR RESOURCES

Gestation Period of Muskrats Probably 29 to 30 Days.--Frank R. Smith, in charge of muskrat investigations on the Eastern Shore of Maryland, reports that two litters recently born from controlled matings indicate that the gestation period for muskrats is 29 to 30 days, instead of 21 as sometimes stated. Several more litters expected from controlled matings will provide further checks on this finding.

Visit New Muskrat Experiment Station.--Mr. Ashbrook and C. E. Kellogg visited the Blackwater Migratory Bird Refuge, near Cambridge, Md., during the latter part of July to inspect preparations being made for transferring the muskrat investigations to the refuge. Ground has been cleared for the new muskrat pens and some units have been built. The framework of these new units consists of galvanized pipe, and some of the pens have raised floors. When the work is completed there will be many more pens available than at the present location.

Scientists Visit Fur Animal Station.--On July 20, a party of geologists and naturalists attending the International Geological Congress in Washington, D.C., visited the Fur Animal Experiment Station, at Saratoga Springs, N.Y. In the party were the director of the Zoological Garden at LaPlata, Argentina, and a member of the faculty of the University of Prague, Czechoslovakia.

DISEASE INVESTIGATIONS

Inspect Work in Richmond.--On August 8 and 9 Mr. Henderson and Dr. Shillinger were in Richmond, Va., inspecting the work being done by Dr. L. C. Morley on the diseases of game birds. The White Oak Quail Farm, with which the Bureau is cooperating in its disease studies, reports a good hatch of birds this season, with few losses, and little evidence of infectious diseases. Dr. Morley is making a special effort to isolate the organism causing ulcerative enteritis in quail.

Attends Meeting of Veterinarians.--Dr. Shillinger left Washington, on August 14, for Chicago, Ill., to attend the annual meeting of the American Veterinary Medical Association, at which he presented a paper prepared in collaboration with Dr. Morley reporting the progress made in the Bureau's studies of game-bird diseases. Dr. Shillinger discussed the variety of test birds used in Bureau experiments in transmitting ulcerative enteritis in quail, grouse, and other game birds. This disease, he reported, often wipes out a large part of the stock on game-bird farms, young birds sometimes dying within 48 hours after contact with a virulent strain of the infectious agent. The causative organism, he said, has not yet been grown in the laboratory in pure cultures, but postmortems indicate that it is a toxin producer as well as a cause of ulcer formation in the digestive tract. Several States and institutions have offered to cooperate in these studies, and some have supplied funds and experimental equipment.

PREDATORY ANIMAL AND RODENT CONTROL

In New England.--W. E. Crouch left Washington, on August 16, for New England to confer with State officials who are cooperating with the Bureau in conducting antirat campaigns and to spend some time at the Bait Mixing Station at Barnstable, Mass., where Regional Supervisor James Silver, Dr. J. C. Munch, consulting pharmacologist, and Leader E. M. Mills have been working on the extraction of red squill in liquid form. The canning plant is now in full operation. Mr. Crouch returned to headquarters on August 28.

Control Pocket Gophers on Indian Reservations.--Arrangements have been made under the Emergency Conservation Act to conduct control operations against pocket gophers on the Turtle Mountain Indian Reservation, N. Dak. H. H. Haecker, the Bureau's rodent-control assistant in the South Dakota district, has been detailed to supervise the activities until the project is well under way. Ground-squirrel control on the reservation for this season had previously been completed under the direction of the Biological Survey.

Control Prairie Dogs in Nebraska.--Under the emergency conservation program prairie-dog control is being undertaken in Nebraska under the supervision of the extension forester of the State University. Regional Supervisor L. L. Laythe has assisted in procuring supplies and starting the work. The area to be treated lies adjacent to the Pine Ridge Indian Reservation, S. Dak., where prairie-dog control is now being carried on under the Emergency Conservation Act. From there it is planned to extend the work southward, so that the entire infested area will eventually be cleared. This large prairie-dog town has long been a source of reinfestation to adjacent areas in South Dakota and Wyoming that have been cleared by landowners under the supervision of the Bureau.

Stockraisers Protest Reduction in Bureau Appropriations.--The Bureau is receiving numerous protests from livestock organizations and individual growers against the drastic curtailment in the force of predatory-animal hunters made necessary by the 27 percent reduction in appropriations. The cut in Federal funds, together with the diminished expenditures by State, county, and individual cooperators, has forced the Bureau to reduce predator-control personnel to almost a skeleton basis. Coyotes and other predators have increased during the past two years, because furs have brought such low prices that private trappers have been less active and the Bureau's men have been unable to stem the increase. Stockmen are now suffering more than normal losses, at a time when increased profits could have been expected from the rising prices for livestock and wool.

LAND ACQUISITION

Attends Conference on Rural Life.--Dr. Dieffenbach attended the American Country Life Conference, held on the campus of the Virginia Polytechnic Institute at Blacksburg, Va., August 1 to 4. This meeting, attended by approximately 1,200 persons, was called to consider various phases of rural life. Among the speakers

was Secretary Wallace. Mr. Dieffenbach was the Bureau's representative at the round-table conference considering national policies affecting land problems. The discussions, he reports, dealt with the utilization of land for agriculture, forestry, wild-life refuges, recreation, and other purposes.

Plan Roads for Refuges.--Charles S. Cook, assistant cadastral engineer, who has been determining the location of roads to be built by the Civilian Conservation Corps on the Swanquarter Migratory Bird Refuge, N.C., and the Blackwater Migratory Bird Refuge, Md., is at present in Washington preparing the plans and specifications for these roads. Bert J. G. Tousey, assisted by James W. Whitehead, is at the St. Marks Migratory Bird Refuge, Fla., determining the location of roads and telephone lines to be constructed by the C.C.C. camp.

Continues Engineer Work at Swanquarter Refuge.--J. Ralph Campbell is assisting Harold F. West in engineering projects on the Swanquarter Refuge, N.C.

Detailed Men in the East.--Members of the Division of Land Acquisition detailed to the Forest Service, listed in THE SURVEY for July, report that they are engaged in forest-land appraisals and boundary surveys in the Eastern United States.

GAME AND BIRD CONSERVATION

Visits Swanquarter and St. Marks Refuges.--T. E. Jacoby visted the Civilian Conservation Corps camps located on the Swanquarter and St. Marks migratory bird refuges during the first part of August to institute office procedure.

Transferred to Bureau.--Mrs. Wilda C. Tucker was transferred from the Bureau of Plant Industry, of the Department, to this Division on August 10 to fill a stenographic vacancy, shifts in the Division having been made necessary by the transfer of Miss Johanna H. Corsack to the Division of Administration.

Protected Game Birds Illustrated.--Helpful cooperation in wild-fowl conservation has been given by "Sports Afield" in bringing to the attention of hunters those species of wild ducks on which the season is closed throughout the year; namely, the wood duck, the ruddy duck, and the bufflehead. The outside cover of the September issue of that journal illustrates these species in natural colors, from a drawing by W. J. Wilwerding, and a reading note calls particular attention to the protection afforded the birds under Federal regulations.

Rains Benefit Wild Life.--Much-needed rains at Big Lake Bird Reservation, Ark., have recently raised the level of the water in the lake, thus benefiting the birds and fish, Protector Steven B. Crossley reports. Water conditions there now, he says, permit the patrolling of the refuge with a boat, a method that has not been possible at this time of year since he was placed in charge of the area, three years ago. On the night of August 3, wild geese were heard in the locality--an unusual occurrence at this time of year. It is said locally that years ago wild geese nested on Big Lake, but they now use it only occasionally, as a resting place during migration. Many herons, egrets, wood ducks, and wood ibises are now on the refuge, Protector Crossley reports.

Notes Increase of Wild Life at Savannah River Refuge.--United States Deputy Reservation Protector Mannie Carter reports that he has observed more ducks this summer than usual at and near the Savannah River Wild Life Refuge, S.C., and also more purple gallinules nesting on the refuge than heretofore. He reports a great increase in game species in the region.

Drought Causes Losses Among Ducks.--Because of dry weather in northern North Dakota during July, most of the small ponds in the vicinity of Sullys Hill Game Preserve dried up, and it is believed that as a result many young ducks perished.

Mailing Address Changed.--As the post office at Voltage, Oreg., where George M. Benson, protector in charge of Lake Malheur Bird Reservation, formerly received his mail, has been discontinued, mail for the reservation should now be sent to Mr. Benson at Princeton, Oreg.

Fire Threatens Bison Range.--On July 31, a fire raging north and west of the National Bison Range, Mont., threatened to enter the preserve, but Protector R. S. Norton, other employees of the preserve, and nearby residents by starting a back-fire brought it under control before the preserve was damaged. Between 5,000 and 6,000 acres were burned over, Dr. Norton reports.

Civilian Conservation Corps at Refuges Busy.--The work accomplished under the emergency construction program at the Blackwater Migratory Bird Refuge, Md., includes cleaning out road-drainage ditches, clearing a road right-of-way, cutting and laying corduroy material on 469 feet of road, cutting telephone poles, and removing brush and debris from several hundred square feet of woodland. An educational program instituted at the camp on this refuge has included lectures by members of the Bureau on wild life and on fire protection. At the St. Marks Migratory Bird Refuge, Fla., a portion of the main road right-of-way has been cleared of stumps, four fills have been constructed near the town of St. Marks, most of the needed telephone poles have been placed, and a considerable amount of road construction has been accomplished. At the Swanquarter Migratory Bird Refuge, N.C., more than 7,000 feet of a road right-of-way have been cleared, a temporary wharf has been built, and many of the men have been engaged in building a mess hall. Trails and fire lines are being constructed.

Inspector Injured.--Word has been received that Lee S. Crandall, importation inspector of foreign birds and mammals at New York, is confined to the Stroudsburg (Pa.) Hospital as a result of serious injuries recently received in an automobile accident near Stroudsburg. It is expected that he will be in the hospital about 6 weeks.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

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GENERAL NOTES

Continues Inspection Work in West.--Mr. Redington, continuing his inspection of the work of the Bureau in western States, has been in California during September. He plans to visit field stations in Oregon and Washington before returning to headquarters.

NIRA Allots Biological Survey \$971,550.--In accordance with provisions of the National Industrial Recovery Act, the Federal Emergency Administrator of Public Works recently allotted \$971,550 to the Department of Agriculture for use by the Biological Survey in improving wild-life refuges, in constructing and repairing boats, floats, docks, and storehouses, needed in the administration of the Migratory Bird Treaty Act and the Alaska Game Law, and for other purposes. The work will be carried on in 31 States, the District of Columbia, and Alaska. Improvements will be made on more than 30 refuges, and will include such features as location and permanent marking of boundaries; construction of roads, bridges, dams, and dikes, and of fills for water conservation; purchases of land for dam sites; erection of fences, telephone lines, wharves, protectors' cabins, lookout towers, barns, garages, boathouses, and other buildings; posting warning signs against trespass; construction of fire lines; removal or repairs of buildings; and digging wells. At the Wind Cave Game Preserve, S. Dak., a buffalo-exhibition pasture and a corral for capturing buffalo and elk in surplus control to prevent overgrazing will be provided; and at the Elk Refuge, Wyo., the production of winter feed for the animals will be facilitated by land preparation, extension of the irrigation system, and the seeding of additional hay meadows. The allotment also includes \$3,600 for establishing biological field laboratories at Flagstaff and Continental, Ariz., and \$16,350 for construction and repair work at the Rabbit Experiment Station, Fontana, Calif., the Fur Animal Experiment Station, Saratoga Springs, N.Y., and the Muskrat Experiment Station on the Blackwater Migratory Bird Refuge, Cambridge, Md. Of the total allotted the Bureau, \$184,700 is for the construction of new boats, floats, docks, and storehouses in Alaska and the erection of headquarters buildings for wardens in connection with administration of the Alaska Game Law.

In addition to the \$971,550, the Bureau has also recently received from the emergency funds, by transfer from the Forest Service, an allotment of \$293,100 for rodent control on national forests (see p. 71).

Addresses International Association of Game Commissioners.--An address by Mr. Henderson on the waterfowl situation and one by A. M. Day on predatory-animal control were presented by Mr. Henderson at the annual meeting of the International Association of Game, Fish, and Conservation Commissioners, held in Columbus, Ohio, September 21 and 22. The Biological Survey was also represented at the meeting by United States Game Conservation Officer H. P. Sheldon and Assistant United States Game Conservation Officer W. R. Dillon.

In his address, on "The Condition of Our Waterfowl", Mr. Henderson said that the only hope for the future of migratory game birds and the sport of wildfowling is in reducing the number of birds killed. If the situation in 1934 is less favorable than in 1933, or even if it is only as good, we shall be forced, he predicted, to adopt further restrictions or the sport of wildfowling will be doomed. Necessary emergency measures, he assured the commissioners, will have the strong support of the Government to make them effective, and he appealed to all sportsmen for cooperation. Mr. Henderson summarized observations made by biologists in the Northwest Plains States, the Prairie Provinces of Canada, and over a vast area to the north. Conditions, he said, especially those in the more northern areas, indicated that the shortage of these birds cannot be charged mainly to drought, but that over-shooting has not left sufficient stocks to utilize the breeding possibilities. "Almost the only encouragement that can now be found in the migratory game bird situation," he said, "is derived from the fact that at last the sportsmen in this country and in Canada are alarmed and are ready to support any action that may be necessary". He urged sportsmen to practice strict moderation in shooting and to see that the kill is made chiefly from the more abundant species. In reply to claims that gunners would not observe additional restrictions, Mr. Henderson declared that it would be most unflattering to the vast body of sincere sportsmen to imply that there does not exist a majority unselfish enough to support any measures, however drastic, that may be found necessary to save the ducks and geese. Refuge areas he described as of primary importance to the future welfare of the birds but of secondary interest in the present emergency. At present, he said, the value of refuge areas is to be measured more by their effectiveness in reducing the kill of wildfowl than by the extent to which they may increase the nesting and feeding grounds.

Effective predatory control cannot be classed as a function of either the Federal Government or of the States alone, but it can best be performed cooperatively, with the interests of each interlocking, said Mr. Day's address entitled "Effective Predator Control--A State or a Federal Function?" which was read by Mr. Henderson in Mr. Day's absence. The entry of the Federal Government into predatory-animal control work, it was pointed out, was in answer to persistent demands from States, counties, and livestock agencies for assistance in protecting livestock from the depredations of wolves, coyotes, mountain lions, bobcats, and other large predators that migrated from the national forests and other public domain to privately owned lands, and for help in combating outbreaks of rabies spread by coyotes. "It would be unfair," said the paper, "to say that the control of predatory animals is a function solely of either the State or the Federal Government." "The Federal Government," it continued, "is plainly obligated to control predatory animals on public lands where necessary," and it is also in position to undertake other work that would be impossible from the viewpoint of any State, such as combating outbreaks of rabies in areas larger than one State and maintaining a research laboratory where methods of predatory-animal and rodent control on broad lines are perfected and traps and poisons tested. In States, especially in the East and Middle West, however, where foxes, skunks, weasels, and opossums, are classed as predators, their control, it was said, may best be left to State and local governments rather than to the Federal Government, as such animals are not migratory in the sense that the larger predators are.

Speaks at Forestry Congress.--At the Central States Forestry Congress, held in Chicago, Ill., Mr. Henderson, on September 23, presented an address on "The Bearing of the Biological Survey's Work on Forestry." The Bureau's research, he pointed out,

has demonstrated that the wild animals of the country are of tremendous economic importance, through their interrelationships, their effects on soil and plant growth and on domestic animals, and their influence on human interests, especially in forested areas, where so much of the wild life has its stronghold. Through their food habits all forms of forest wild life, he showed, have important relations to forests. He spoke of the studies being carried on of the complex wild-life situation in forests and declared that it would be most unwise to attempt to formulate any final management plans for the forest fauna without obtaining a clearer understanding than we now have of the interdependence of the myriad organisms. He described the Bureau's studies of mice, of rabbits in the Lake States, and of deer in the Pisgah National Forest. The studies of forest rodent pests have been particularly opportune, he pointed out, because of the vast expansion in forest planting authorized under the National Recovery Act as well as under part of the Emergency Conservation Work program. The results, he said, afford means of protecting the planted areas and thus help in safeguarding the public investment. The husbanding of the valuable fur bearers and game species so that they may produce a steady flow of revenue, Mr. Henderson declared, is one of the greatest needs of forest practice. The Biological Survey, he said, will intensify its study of this matter.

Oil-Pollution Conferences Held.--The second and third meetings of the Inter-departmental Committee on Oil Pollution of Navigable Waters were held at the State Department on August 29 and September 6, reports F. C. Lincoln, Department of Agriculture representative. At Mr. Lincoln's suggestion, the Navy Department was added to the other Departments studying the problem. At its second meeting the committee heard representatives of the American Steamship Owner's Association and of the American Petroleum Institute, and at the third meeting a representative of the Navy informed the committee concerning methods adopted to prevent oil pollution from warships. Data submitted by game protectors and others have been placed before the committee. It is probable, says Mr. Lincoln, that the subject of oil pollution of the seas may be brought to the attention of the League of Nations.

Supervises Bureau Exhibit.--Sets emphasizing the necessity for conserving game birds and fur-bearing animals, included in the Department's exhibit at the Eastern States Exposition in Springfield, Mass., September 17 to 23, brought out many inquiries regarding the various phases of the Biological Survey's work, reports Lisle Morrison, who supervised the Bureau's part of the exhibit. As a result of the beaver exhibit, showing habits of the animal in the wild, many of the visitors requested information on transplanting through use of the Biological Survey beaver trap. The beaver, Mr. Morrison was informed, is increasing in a number of New England States and it is expected that the information on transplanting will result in the restocking of additional areas. The daily attendance at the fair was between 35,000 and 60,000.

Official Publications have been received as follows:

"Open Seasons for Migratory Game Birds, 1933-34." Poster 52-Bi, September 13, 1933.
Received September 15.

"Migratory-Bird Treaty-Act Regulations and Text of Federal Laws Relating to Game and Birds." Service and Regulatory Announcements--B.S. 78, 20 p., September 1933.
Received September 18.

"Pertinent Facts on the Angora Wool Rabbit." Leaflet Bi-1292, 1 p., August 1933.
Received August 28.

"Feed Cost of Producing Young Rabbits to Weaning Age." Leaflet Bi-1294, 3 p., August 1933. Received September 15.

"How Game and Fur Farmers Can Use Biological Survey's Aid in Combating Wild-Life Diseases." Leaflet Bi-1266, 2 p., September 1933. Received September 22.

"The Condition of Our Waterfowl." Address by W. C. Henderson at the meeting of the International Association of Game, Fish, and Conservation Commissioners, at Columbus, Ohio, September 22, 1933. 8 p. Received September 23.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, C. M. Are all hawks and owls detrimental? Minn. Conservationist 3: 10-11, 17, illus. August 1933.

Cottam, Clarence. Recent observations on eelgrass conditions. Plant Disease Reporter 17 (10): 119-120. August 15, 1933.

Hanson, K. B. Tests of the efficacy of single treatments with tracheal brushes in the mechanical removal of lungworms in foxes. Amer. Vet. Med. Assoc. Jour. 35 (1): 12-33. January 1933.

Holman, G. E. Carnivorous animals of Utah. In Utah Resources and Activities. Utah State Dept. Ed. 1 (1): 142-147, illus. August 1933.

Lincoln, F. C. Some waterfowl problems revealed by banding operations. New England Game Conference 5th Ann. Rpt.: 10-30, illus. 1933.

----- A decade of bird banding in America: A review. Smithson. Inst. Ann. Rpt., 1932 (3201): 327-351, illus. 1933.

McAtee, W. L. Some local names of plants--V. Torreya 33 (4): 81-86. July-August 1933.

Morley, L. C. The prevention and control of ulcerative enteritis in bobwhite quail. Md. Conservationist 10 (3): 6-7. Summer issue, 1933.

Murie, O. J. Some methods in big game studies. Utah Agr. Expt. Sta. and Ext. Serv. Misc. Pub. 10: 34-38. May 1933.

Mushback, G. E. The Bear River Migratory Bird Refuge. Utah Agr. Expt. Sta. and Ext. Serv. Misc. Pub. 10: 12-14. May 1933.

Sperry, C. C. Autumn food habits of coyotes: A report of progress, 1932. Jour. Mammal. 14 (3): 216-220, illus. August 1933.

-----Highway mortality of rabbits in Idaho. Jour. Mammal. 14 (3): 260. August 1933.

Taylor, W. P., and Vorhies, C. T. The black vulture in Arizona. Condor 35 (5): 205-206. September-October 1933.

Zimmerman, R. S. Rodents of Utah--their economic relation to agriculture and range. In Utah Resources and Activities. Utah State Dept. Ed. 1 (1): 136-140, illus. August 1933.

ADMINISTRATION

Suggests Plan of Automobile Insurance.--United States Game Protector Stephen Creech offers a suggestion that may interest those who operate both Government-owned and privately-owned automobiles. He says that by paying his insurance company in addition a sum amounting to 25 percent of the regular premium, he is insured against liability and property damage to his automobile or any other automobile he may operate. The question to be considered in this connection, says Mr. Thompson, would seem

to be whether the additional premium is less than that charged for like coverage under the Government group-insurance policy.

BIOLOGICAL INVESTIGATIONS

In Washington.--Luther J. Goldman, who has been investigating conditions on waterfowl breeding grounds in Canada and Northwestern States, arrived in Washington on September 27 to confer with Bureau officials.

Visits Long Island Sanctuary.--F. C. Lincoln was at the Jones Beach Bird Sanctuary, near Wantagh, Long Island, N.Y., from September 12 to 14, investigating the suitability of so-called "hand-reared" ducks for restocking or sporting purposes. At the Flanders Club, on the eastern end of Long Island, he reports, about 4,500 ducks were raised and liberated this year. Although these birds were not full-blooded black ducks, most of them closely resembled the normal wild birds. They were not raised in confinement, but under controlled conditions. The system employed at this club, Mr. Lincoln believes, may have important possibilities in plans for restocking wild-fowl marshes. At all other points that Mr. Lincoln visited the ducks were mallards, which when hand-reared are heavy bodied and thus not good sporting ducks.

Large Numbers of Shorebirds Banded.--O. L. Austin, Jr., reports that methods of capturing shorebirds for banding at the O. L. Austin Ornithological Research Station, at North Eastham, Cape Cod, Mass., have been so perfected that an average of 100 birds are taken daily, including many of the larger species. During the past month, Mr. Austin says, about 2,000 shorebirds were banded at the Research Station, 1,400 of which were semipalmated sandpipers.

Study Effects of C.C.C. Work on Wild Life.--E. A. Goldman and T. D. Burleigh returned on September 22 from a study of the forest-improvement work of the Civilian Conservation Corps camps in the Southeastern States in relation to wild-life interests. Mr. Burleigh spent two days in Washington before returning to his headquarters at Asheville, N.C.

Confer on Reindeer Problems.--L. J. Palmer, in charge of the Bureau's Reindeer Experiment Station, at Fairbanks, Alaska, recently spent a few days at Anchorage, Alaska, conferring with a special agent of the Department of the Interior on matters connected with the reindeer industry.

FOOD HABITS RESEARCH

Inspect Proposed Game-Management Areas.--Mr. McAtee and J. Paul Miller were in New England from September 2 to 12 inspecting areas upon which projects on forest-game management may be inaugurated. Foresters in New England, Mr. McAtee reports, are turning more and more to recreational uses of the land. The proposed projects, he explains, would be carried on in an effort to learn whether increased production of game is economically feasible in New England forests and whether the surplus game produced can be profitably exploited through the disposal of shooting privileges.

Surveying Waterfowl-Food Resources.--Neil Hotchkiss has begun a survey of the waterfowl-food resources of lakes and marshes in Iowa.

Examines Proposed Refuge Areas.--After a few days spent at the Crescent Lake Migratory Bird Refuge, Nebr., studying conditions with a view to making recommendations for improvements, A. C. Martin early in September undertook a series of examinations of areas proposed for refuges in various western States. He returned to Washington on September 23.

FUR RESOURCES

Inspects Progress of Rabbit-Experiment Work.--Mr. Ashbrook spent the greater part of August and September at the United States Rabbit Experiment Station, Fontana, Calif., noting the progress of experimental work there. En route to California, he conferred with fur dealers and the American Rabbit and Cavy Breeders Association in Chicago, Ill., and arranged with the secretary of the association for the rabbit exhibit at the national convention to be held at Chicago, October 10 to 15.

Hurricane Destroys Muskrats.--Frank Smith, in charge of the muskrat experimental work at Church Creek, Md., reports that as a result of the hurricane that swept the Atlantic Coast region on August 23 the water was $2\frac{1}{2}$ feet deep in the muskrat pens. Every effort was made to provide the muskrats with floats on which they could remain until caught and moved to higher ground, but in spite of these efforts there was a heavy mortality, the greatest being in the gestation-group pens. It appears now that little additional information on the length of the gestation period will be obtained this year. The surviving muskrats have been moved to the pens recently constructed on the Blackwater Migratory Bird Refuge.

DISEASE INVESTIGATIONS

Returns from Veterinary Meeting.--After attending the annual meeting of the American Veterinary Medical Association, held in Chicago from August 14 to 18, Dr. Shillinger conferred in Warsaw, Wis., with the director of the American National Fox and Fur Breeders' Association. From there he returned to Washington, stopping en route at Battle Creek, Mich., to confer with the superintendent of the Kellogg Bird Sanctuary and also at Grand Rapids, Mich., and Toledo, Ohio, to study disease outbreaks on fox ranches. He arrived in Washington on August 28. Several States, Dr. Shillinger learned in conferences at the Chicago meeting, have become so concerned over losses in wild life that they are employing pathologists to carry on research relative to controlling the waste of game caused by disease. New York, he says, employs a State veterinarian; Ohio appropriates funds for carrying on research in game diseases at the State University at Columbus; and Oregon makes similar contributions to the State Agricultural College at Corvallis.

Losses on Game-Bird Farms Small.--Game farms cooperating with the Disease Investigations Project in a study of abnormalities affecting game birds report unusually small losses from disease this season. While a considerable number of birds perished on eastern game farms as a result of the storm on August 23, infectious diseases have been relatively rare and of short duration in the flocks affected.

Studies Duck Sickness in Utah.--From August 8 to 30, E. R. Kalmbach, in charge of the Denver Food Habits Research Laboratory, was at the Bear River Migratory Bird

Refuge, Utah, where indications earlier in the season pointed to the possibility of another severe outbreak of duck sickness. The disease appeared in only moderate intensity during this period, reaching its peak on August 21. An extremely low water level, together with absence of rain, resulting in the formation of extensive dry flats, kept to the minimum conditions conducive to the disease. In anticipation of a possible outbreak of larger proportions, a "hospital", or "receiving ward", for helpless birds was constructed at the headquarters of the refuge to expedite salvaging operations. Unless early fall rains or the release of irrigation water floods the flats now dry, while temperatures are still high, it is expected, says Mr. Kalmbach, that the year will pass without pronounced mortality in the region.

Returns from Canadian Expedition.--Dr. R. G. Green, of the University of Minnesota, cooperator with the Bureau in studies of game-bird diseases, has returned from an extensive expedition into the wilderness region of northcentral Canada. He was accompanied by four other scientists, including Mrs. Green, who assisted him in collecting many specimens of mammals and birds. Dr. Green found tularemia occurring in the unsettled district west of Hudson Bay, and he reports that findings in the cooperative wild-life disease investigations in Minnesota are similar in a general way to those observed in Canada.

PREDATORY ANIMAL AND RODENT CONTROL

Inspects Control Work in Michigan.--Albert M. Day left Washington on September 7 to inspect the predatory-animal and rodent-control work in Michigan, Wisconsin, and Minnesota. He returned to headquarters on September 25.

In Washington.--Paul T. Quick, in charge of the rodent control bait-mixing station recently moved from Pocatello, Idaho, to McCammon, Idaho, arrived in Washington on September 25 to discuss plans for the preparation of rodent baits to be used during the coming season.

Survey Gets NIRA Funds for Rodent Control.--A sum of \$293,100 from funds provided by the National Industrial Recovery Act and allotted to the Forest Service by the Federal Emergency Administrator of Public Works has recently been allocated to the Biological Survey for the control of rodent pests on national forests. The work will be carried on in Montana, Colorado, Wyoming, New Mexico, and the other Western States. The \$293,100 will be in addition to the \$971,550 of emergency funds allotted to the Department for use by the Biological Survey as described on page 65.

Antirat Campaign in Georgia and Alabama.--Because of a serious outbreak of typhus fever in southern Georgia, the State is planning an extensive antirat campaign. James Silver spent the week beginning September 12 in Atlanta, where, with Roy Moore and Carlyle Carr, he assisted the officials of the State Health Department and the United States Public Health Service in organizing a campaign to cover the entire southern part of Georgia and a large part of Alabama.

M. M. Smith., clerk in the predatory-animal-control office at San Antonio, Tex., died on September 11, 1933. Mr. Smith had been in the service of the Bureau since July 1, 1921. His associates report that he always showed a fine spirit of loyalty and that his work was of the highest type.

GAME AND BIRD CONSERVATION

Loses Life in Hurricane.--The Bureau has received word that United States Deputy Game Warden George W. Cobb perished on Cobb Island, off the eastern shore of the "Delmarvia" peninsula, during the hurricane which swept the coasts of Maryland and Virginia on August 23.

Hurricane Damages Bureau Boats.--Hoopers Island, in Chesapeake Bay, where the Bureau's motor boats Curlew and Willet were stationed, was under water several feet during the storm of August 23, it being estimated that the tide rose 6 feet or more above the normal high. Both of the toll bridges connecting the island with the mainland were carried away, and many buildings and boats were destroyed. The wreckage from a demolished two-story packing house hit the mooring stake of the Willet and carried both boat and stake a considerable distance. The rudder post of the boat was badly bent and the windshield broken, but otherwise it withstood the storm fairly well. The Curlew was torn from its mooring, carried across the county highway, and fouled in a wire fence half a mile from its mooring stake. All the canvas and one piece of copper sheathing were torn from the boat. Part of a side fender, the flag masts, and radio and other poles were carried away.

Contraband Beaver Shipment Seized.--After trailing a shipment of contraband beaver skins that originated in the Kuskokwim region of Alaska, H. W. Terhune, executive officer of the Alaska Game Commission, with the aid of Customs officials, on September 16, 1933, seized the beaver skins at Seattle, Wash. The shipment, one of the largest ever intercepted, contained 956 skins.

Fires Damage Refuges.--On August 13, a fire, caused by lightning, burned over approximately 15 acres, about one fifth of 1 percent of the fenced area, on the Wind Cave Game Preserve, S.Dak. The fire was practically under control within an hour, but the area was patrolled until the following morning. On August 13 a small fire also broke out on a cleared area of the Blackwater Migratory Bird Refuge, Md. Two truck loads of Civilian Conservation Corps men brought the fire under control within a short time, and only about half an acre was burned over. On August 6, a fire occurring on the Crescent Lake Migratory Bird Refuge, Nebr., burned a quarter of a mile area of rushes and weeds that surfaced a road through the eastern end of the refuge. The grass adjacent to the road was too short to permit the fire to spread outwards. Deputy Reservation Protector George D. Keenan and two men belonging to his hay crew brought the fire under control. On August 19, sparks from a locomotive started several fires south of the National Bison Range, Mont. Employees of the range assisted by a railroad section crew kept the fires from entering the range.

Storm Damages Blackwater Refuge.--Most of the tents in the Civilian Conservation Corps Camp at the Blackwater Migratory Bird Refuge, Md., were blown down during the storm of August 23, many being torn to pieces. Some trees were destroyed, and extremely high water in the river and marshes made some of the roads impassable. The ditches dug in the past two months expedited the run off of the water. The greater part of the marsh was under water, and muskrats were seen sitting on logs and piles of drifting vegetation, and some dead muskrats were noted.

Storm Hits Blackbeard Island Refuge.--On September 4, a severe storm, which lasted two days, struck Blackbeard Island Reservation, Ga. Some trees were uprooted, and part of the protector's equipment was lost, the tide water around his quarters being about 2 feet deep.

Visits Elk Refuge.--Smith Riley, of Denver, Colo., formerly in charge of the Survey's game and bird reservations, visited the Elk Refuge, Wyo., on August 16, and spent several days in Jackson Valley.

Addresses C.C.C. Personnel.--On August 16, an interesting talk was given by the Florida State Forester to the Civilian Conservation Corps at the St. Marks Migratory Bird Refuge, on Fire and the Forests of Florida.

Charles Sheldon Refuge Notes.--Ernest J. Greenwalt, in charge of the Charles Sheldon Wild Life Refuge, Nev., reports that on August 31 and several succeeding days the refuge was shrouded in smoke from California forest fires. So thick was the haze that at times the surrounding hills were obscured and the sun appeared like a full moon. A Forest Service photographer and a forest ranger from Cedarville, Calif., visited the refuge on August 6 to observe the antelope. More than 500 of these animals were counted in the vicinity of Swan Lake, and 61 were later seen at Hobble Springs. Other visitors to the refuge during August included E. R. Sans, leader of predatory-animal and rodent control, of Reno, Nev., Ira N. Gabrielson, regional supervisor, of Portland, Oreg., and Dr. John C. Phillips, of Boston, Mass.

Visit Bear River Refuge.--On August 20, Supt. George E. Mushbach conducted a party of Ogden (Utah) residents over the Bear River Migratory Bird Refuge. The tour was sponsored by the Ogden Kiwanis Club, and 185 persons with 45 automobiles made the trip. A short talk concerning the refuge was made by Mr. Mushbach.

Pheasants Released on Upper Mississippi River Refuge.--On August 31, 50 pheasants obtained from the La Crosse Chapter of the Izaak Walton League of America were released on the Rice Lake closed area within the Upper Mississippi River Wild Life and Fish Refuge.

Duck Sickness Reappears at Tule Lake Refuge.--Duck sickness has reappeared at the Tule Lake Bird Refuge, Calif., and Protector Hugh M. Worcester, with volunteer helpers, is endeavoring to save as many sick birds as possible. Hot weather in August, resulting in the decay of vegetation in shallow, stagnant pools, was evidently the cause. The birds that are captured are cared for in pens.

Canary Entries Increase.--Entries of canaries, which had been negligible for several months, showed a noticeable increase during the last half of August and the first two weeks of September. A total of 34,711 canaries were entered, an average of more than 1,000 a day for the period. Only 6,520 were brought in during the previous month.

Interesting Birds Imported.--Among the more interesting birds imported during the month were 25 rice quail from India and 24 Baya weavers (*Ploceus philippinus*).

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No. 10

GENERAL NOTES

Chief Continues Inspections: Broadcasts from San Francisco.--Mr. Redington during September and October included Los Angeles, Pomona, Berkeley, San Francisco, and the Tule Lake Bird Refuge in his itinerary inspecting the Bureau's work in California. He also visited the Charles Sheldon Wild Life Refuge, Nev., and conferred with field officers in Portland, Oreg. In Seattle, Wash., he conferred with Hugh W. Terhune, chief resident representative of the Bureau in Alaska, about the construction of boats and other projects under allotments made by the Federal Emergency Administrator of Public Works to the Department for the Alaska Game Commission. After leaving Seattle Mr. Redington visited the Olympic peninsula to get first-hand information in regard to the Olympic elk. He then returned to San Francisco, again stopping en route at Portland. While in San Francisco, on September 25, Mr. Redington spoke over the radio on "Some Aspects of the Work of the Biological Survey." His address was broadcast during the program of the Western Farm and Home Hour over Station KGO and eight other stations associated with the Pacific Division of the National Broadcasting Company. After recounting the more familiar functions of the Survey, Mr. Redington spoke of the serious menaces now confronting wild fowl and made a plea that "the thousands upon thousands of bird lovers and sportsmen . . . lend their efforts to a program of refuge establishment that, if soon carried out, would put the declining species beyond the possibility of extermination." He closed with the hope that "those within reach of my voice may do what they can to see to it that the waste in the natural resources of fauna and flora be stopped."

Investigate Wild-Fowl Baiting.--The Biological Survey has begun a special study of waterfowl baiting, to be carried on throughout the present open season. The data obtained will be considered in drafting hunting regulations. Twelve members of the Bureau's staff--8 from the Division of Food Habits Research, 3 from the Division of Biological Investigations, and 1 from the Division of Game and Bird Conservation--will observe conditions in practically all the principal areas in the United States on which wild fowl are shot, and Federal game protectors throughout the country will make observations supplementing the work of the special investigators. The investigators will also obtain information on the numbers and the natural food supplies of waterfowl and shorebirds. Members of the Division of Food Habits Research engaged in these studies and the areas in which they are working are as follows: Clarence Cottam, coastal waters from Maine to the Potomac River; Neil Hotchkiss, coastal waters from Virginia to Florida; F. M. Uhler, Illinois River Valley, Missouri, Arkansas, western Kentucky, Tennessee, and northern Mississippi; A. C. Martin, coastal Alabama, Mississippi, Louisiana, and Texas; C. C. Sperry, Colorado; E. R. Kalmbach, Utah; T. H. Scheffer, Washington and Oregon west of the Cascade Mountains; and Johnson A. Neff, California from the Suisun Marshes northward, eastern Oregon, and Nevada. F. C. Lincoln, C. M. Aldous, and L. J. Goldman, of the Division of Biological Investigations, are engaged in the work, Mr. Lincoln in

Michigan, Ohio, and western Pennsylvania and New York; Mr. Aldous in Wisconsin, Minnesota, Iowa, North Dakota, and South Dakota; and Mr. Goldman in California south of the Suisun Marshes. William T. Krummes, acting supervisor of the Crescent Lake (Nebr.) Migratory Bird Refuge, is studying the conditions in Nebraska.

Robert Young Stuart.--The Biological Survey has lost a valued friend and a cooperator highly sympathetic with its programs and problems in the tragic death of the Chief Forester, Robert Y. Stuart, which occurred on the morning of October 23. To get an early start on his heavy week's work he had come to his seventh-floor offices in the Forest Service before the arrival of his associates, who believe that in opening the windows he lost his balance and fell to the pavement below. The shock comes to the Biological Survey with particular poignancy since many members of this Bureau, including both the Chief and the Associate Chief, had been intimately associated with him as coworkers in the Washington and field offices of the Forest Service. To the Bureau officially there is a sense of great loss because the late Chief Forester had taken a personal interest in forestry wild-life research, game management studies on forested areas, control of predators and rodents on forests, and the newer work in connection with the National Recovery program. Many were the honors and responsibilities that had come to him. In 22 years he rose to his eminent position through the grades from forest assistant, to which he was appointed after graduation from Yale School of Forestry in 1906, and during part of this time (1917-19) he was with the A.E.F. in France as major of the Forestry Engineers Regiment and (1920-27) was deputy commissioner and commissioner of forestry of Pennsylvania, secretary of the Department of Forests and Waters of that State, member of the Tri-State Delaware River Commission, and (in 1926) chairman of the Pennsylvania Sesquicentennial Commission. He was a member of the National Capital Park and Planning Commission, vice-chairman of the National Committee on Wood Utilization, and former president of the Society of American Foresters. As one of the nation's leading experts on timber and lumber he was active in establishing and placing the Civilian Conservation Corps camps, three of which are on migratory-bird refuges of the Biological Survey, and he directed the first forest road and trail building under the Public Works Administration. One of his latest honors, in recognition of his many attainments, was the degree of Doctor of Science, conferred last June by his alma mater, Dickinson College (of which he was also a trustee) on the occasion of its 150th anniversary. Though eminently entitled to such distinction in the scientific world, this honor came to him so recently that he will probably continue to be referred to by his former comrades as Major Stuart, or more intimately as "Bob."

Bureau's Research Work Described in Scientific Monthly.--Continuing a series on research work of the Federal Government, the Scientific Monthly for October opens with an 18-page article entitled "The United States Bureau of Biological Survey," by Paul G. Redington. The article discusses the development and functions of the Bureau. It contains 24 illustrations including pictures of the four chiefs, Dr. Merriam, Mr. Henshaw, Dr. Nelson, and Mr. Redington, and the associate chief, Mr. Henderson, and a chart showing the organization of the Bureau.

Addresses Audubon Association.--Speaking on the "Wild Fowl Situation in North America" before the annual meeting of the National Association of Audubon Societies, in the Lecture Hall of the American Museum of Natural History, in New York, on

October 30, Mr. Henderson expressed appreciation for the cooperation tendered the Bureau by officers of the Association and mentioned the peculiar interest that bird life has for conservationists, sportsmen, farmers, and others. Discussing the crisis now facing the game species, he emphasized that something must be done to avoid the inevitable extermination that will result if we continue to have more hunting of fewer birds, particularly when natural factors, such as extensive droughts, epizootics of botulism, and natural enemies, take additional toll. Mr. Henderson stressed the difficulty of reducing the number of factors deterrent to the birds and told of the Bureau's field investigations undertaken during this hunting season to learn the effect of baiting and the use of decoys. He spoke of the mutual interest of the Survey and the Association in the essential work of establishing bird sanctuaries, but he characterized these as of secondary importance in an emergency and said that promises for the future will not solve present problems. Although present practices tend surely toward extermination, he said, the Survey with the cooperation of the Association and other organizations interested in the restoration and conservation of wild fowl, including associations of sportsmen, will find a way to the solution of the serious waterfowl problems now confronting the country. It is of basic importance, he declared, that there be full recognition of the fact that we must adjust ourselves to a period of changed conditions and admit that the generous hunting privileges formerly enjoyed are a thing of the past.

Supervises Exhibit at Virginia Fair.--Lisle Morrison supervised an exhibit of fur and game animals maintained by the Bureau at the Virginia State Fair in Richmond, October 2 to 7, in cooperation with the State Commission of Game and Inland Fisheries. The exhibit called special attention to the beaver, which is being re-introduced in Virginia by the State Commission. Live bobwhites, ring-necked pheasants, wild turkeys, and a white-tailed deer were also shown. The bobwhite exhibit included birds from a few days old to adult size, and specimens of quail-food plants were arranged on the wall above the live birds. A backdrop to the pheasant, turkey, and deer display showed a farming area suitable for the bird life in the exhibit.

Official Publications have been received as follows:

Winter feeding of wild life on northern farms, by Wallace B. Grange, formerly Co-operative Agent, Division of Food Habits Research. Miscellaneous Publication No. 159, 12 pp., illus., August 1933. Received October 2.

Officials and organizations concerned with wild-life protection, 1933, compiled by Frank G. Grimes, Junior Administrative Assistant, Division of Game and Bird Conservation. Miscellaneous Publication No. 166, 13 pp., September 1933. Received October 7.

Protecting poultry from predacious birds, by W. L. McAtee, Principal Biologist, in Charge Division of Food Habits Research. Leaflet No. 96, 6 pp., illus., September 1933. Received October 12.

Game laws for the season 1933-34, a summary of Federal, State, and Provincial statutes, by H. P. Sheldon, United States Game Conservation Officer, and Frank G. Grimes, Junior Administrative Assistant, Division of Game and Bird Conservation. Farmers' Bulletin No. 1717, 41 pp., October 1933. Received October 20.

Observations on so-called "bloat" in rabbits, by F. D. McKenney, Agent, Wild Life Disease Investigations. Leaflet Bi-1286, 2 pp., September 1933. Received October 12.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Bailey, Vernon. Cave life of Kentucky, mainly in the Mammoth Cave Region, with chapters on the birds, by Florence Merriam Bailey, and on the invertebrates, by Leonard Giovannoli. Amer. Midland Nat. 14 (5): 385-635. September 1933.

Burleigh, T. D. The present status of Brewer's blackbird (Euphagus cyanocephalus) in the Southeast. Wilson Bul. 45 (3) : 111-113. September 1933.

Cottam, Clarence. Spring migration of great blue herons. Auk 50 (4): 427-428. October 1933.

Gabrielson, I. N. Some dainty garden jewels. Gard. Chron. Amer. 37 (10): 277. October 1933.

Jewett, S. G. The season (ornithological): Portland (Oreg.) region. Bird-Lore 35 (5): 278-279. September-October 1933.

Kelso, Leon. "Nyctale fasciata" of Bertoni. Auk 50 (4): 435-436. October 1933.

----- A new wood owl from Mexico. Biol. Soc. Wash. Proc. 46 : 151-152. October 26, 1933.

Knappen, Phoebe. Birds eating saw-fly larvae. Auk 50 (4): 451-452. October 1933.

----- Some bird enemies of Odonata. Auk 50 (4): 452. October 1933.

Lincoln, F. C. State distribution of returns from banded ducks. Bird Banding 4 (3): 132-146, illus. July 1933.

McAtee, W. L. Game management is not merely vermin control. Outdoor Life 72 (5): 24-25. November 1933.

Malloch, J. R. Review of the wasps of the subfamily Pseninae of North America (Hymenoptera: Aculeata). U. S. Natl. Mus. Proc. 82, Art. 26 : 1-60, illus. (Sep. 2967). October 25, 1933.

Munch, J. C. Thallosulfat Vergiftung, Unfall. In Sammlung die Vergiftungsfallen 4 (10): 229-230. 1930.

Oberholser, H. C. The season (ornithological): Washington (D.C.) region. Bird-Lore 35 (5): 272-273. September-October 1933.

Redington, P. G. Keep marshlands for wild fowl. Sci. Amer. 149 (1): 14-16, illus. July 1933. Also, La. Conserv. Rev. 3 (4): 3-6, 38, illus. October 1933.

----- The United States Bureau of Biological Survey. Sci. Mo. 37 (4): 289-306, illus. October 1933.

Taylor, W. P. (with C. T. Vorhies). The life histories and ecology of jack rabbits, Lepus allenii and Lepus californicus, in relation to grazing in Arizona. University of Arizona, Agr. Expt. Sta. Tech. Bul. 49: 470-587, illus. May 31, 1933.

ADMINISTRATION

Bureau Rules on Overtime Leave.--As the result of a question recently raised by one of the district leaders on the taking of compensatory leave for overtime work on Saturdays, the following rule was set forth by the Bureau: "In order to keep within the apparent intent of the law, no compensatory leave should be granted on any one day in excess of 3 hours (where the working day is 7 hours) or 4 hours (where the working day is 8 hours)." In the case that called forth the ruling overtime had accumulated for several Saturday afternoons and it was proposed to allow compensatory leave for the whole of a subsequent Friday and Saturday. In the Bureau's reply it was pointed out that the intent of the law and the interpretations thereof by the Comptroller General seemed clearly to indicate that overtime work on a Saturday should be compensated for by the equal shortening of a subsequent work day, that this day should be one of the work days in the following week if practicable,

and that it was not the intent that such overtime should be allowed to accumulate and compensatory time granted at one time for the accumulations. In the Bureau's memorandum of July 17, 1931, to field leaders, it was stated that: "Service on Saturdays in excess of 4 hours should also be reported in the weekly itinerary reports, and when compensating time has been taken on another week day a canceling record should be made against the day showing how much time was taken off and the particular hours that it offset."

Rules Against Payment of State Sales Taxes.--Federal officials should not pay State sales taxes on articles purchased for official use, according to a decision recently made by the Comptroller General. There is no authority in any State, says the Comptroller, to tax the United States on its purchases and there is no appropriation which may be used to pay such taxes to the States. When "impelling necessity requires field officers to make purchases from retailers who will not agree to make delivery without payment of the amount of the sales tax," Federal officers, the Comptroller General advises, should "take receipts from the retailers showing the purchase made and the payment therefor, with a separate itemization of the amount of the tax." Claims for these taxes, he says, should be handled like those regularly made for refund of gasoline taxes--a form of sales tax. The decision was made with special reference to a case in California.

Married.--On October 21 occurred the marriage of Miss Vinnie F. Morgan, of the accounts section, and Mr. Paul DeBach.

BIOLOGICAL INVESTIGATIONS

Addresses American Humane Society.--"Facts About Our Fur Seals" were discussed by E. A. Preble in an address illustrated by lantern slides, delivered on October 11 before the annual meeting of the American Humane Society and associated organizations at Hartford, Conn. Mr. Preble's experiences on the Pribilof Islands during the summer of 1914 as a member of a special committee appointed by the Secretary of Commerce to study the condition of the fur seal herds enabled him to discuss the subject from personal knowledge of conditions and of the procedure followed in managing this valuable resource.

To Study Fall Migration in West.--On completion of his summer's investigation of waterfowl conditions in the Northwestern States and the Prairie Provinces of Canada, L. J. Goldman spent about two weeks in Washington, D.C., conferring with officials and completing special work. He reported that in the southern portions of Saskatchewan and Alberta a period of hot, dry weather beginning about the middle of June dried up potholes, marshes, and shallow lakes, and thus proved disastrous to the young ducks. In the bush country farther north, however, he found large areas not affected by drought, with water, food, and cover conditions favorable, but the supply of breeding birds was much below the capacity of the country. Mr. Goldman left on October 14 to study the fall migration in the Western States and to investigate special problems in baiting of waterfowl during the shooting season in California. En route West he stopped at St. Paul, Minn., to confer with C. M. Aldous.

Observe Waterfowl on Potomac.--On October 13, Dr. H. H. T. Jackson, and L. J. and E. A. Goldman made a survey of the waterfowl along the Potomac River between Washington and Occoquan Bay. Black ducks composed the greater part of the flocks observed, these totaling more than 40,000 in the region covered.

Studies Relation of Rodents to Fir Reproduction.--Dr. Walter P. Taylor, in cooperation with the Southwestern Forest and Range Experiment Station, spent some time during October studying the relation of rodents to Douglas fir reproduction at Cloudcroft, N. Mex.

FOOD HABITS RESEARCH

Examines Waterfowl-Feeding Areas in Iowa.--Neil Hotchkiss returned to Washington on October 11 from a field trip during which he examined most of the waterfowl-feeding areas in Iowa.

FUR RESOURCES

Talks to Rabbit Breeders.--Mr. Ashbrook, who since the early part of August has been at the United States Rabbit Experiment Station, at Fontana, Calif., inspecting the experimental work being conducted there and making plans for the ensuing year, attended the Los Angeles County Fair at Pomona, on September 29, and explained to a group of rabbit breeders the work carried on at the rabbit station, especially that relating to the cost of feeding young rabbits to weaning age and from weaning to 6 pounds in weight.

Speaks at National Rabbit Convention and Show.--At the National Rabbit Convention and Show held at Chicago, October 9 to 15, Chas. E. Kellogg, who was in charge of the rabbit exhibit, discussed the work being carried on at the Rabbit Experiment Station, at Fontana. He stressed particularly the studies relating to food requirements and feed costs for young rabbits. The talk was supplemented by several charts and graphs. Judging from remarks made by the breeders, says Mr. Kellogg, the Rabbit Experiment Station is being looked to as the chief source of authentic and unbiased information on rabbit raising in the United States.

Addresses Fox Breeders.--Dr. Karl B. Hanson, in charge of the United States Fur Animal Experiment Station, Saratoga Springs, N.Y., attended the meeting of the American Fox Breeders Association, at Needham, Mass., on September 27, and spoke on the experimental work of his station. Dr. Hanson's expenses were paid by the association.

Visits Mink Ranch.--On September 1 and 2, Dr. Hanson visited a mink ranch at Sharon, Mass., to study conditions and collect specimens in connection with an outbreak of disease among the animals.

Muskrat Pens Moved to Blackwater Refuge.--Frank R. Smith, in charge of the muskrat investigations, reports that the moving of the muskrat buildings and pens from a private farm at Church Creek, Md., to the Blackwater River Migratory Bird Refuge, Cambridge, Md., has been completed.

Fox Farmers to be Aided by Farm Credit Decision.--Based in part on data prepared by the Biological Survey in cooperation with silver-fox breeders and associations representing the industry, a recent decision of the Farm Credit Administration recognizes silver foxes as eligible security for loans from Regional Agricultural Credit Corporations. The data showed the amount of capital invested in silver-fox raising in the United States, the extent of the industry, and costs of production. Production information was based on experiments at the Fur Animal Experiment Station. Considering silver-fox raising a business that calls for long experience and special equipment, the Farm Credit Administration has informed the Bureau that it plans to make loans on silver foxes as primary security only to those operators who have specialized in fox farming, have proper equipment, and have shown expert knowledge in the general care and feeding of the animals. Each application, it is added, will be considered on its own merits, and in cases where fox farming is incidental to general farming or other business operations silver foxes may be considered as additional security, within reasonable limits.

DISEASE INVESTIGATIONS

Former Employee Wins Medical Science Award.--The Minnesota Academy of Medicine, on October 11, conferred on Dr. John C. Barton, a former employee of the Biological Survey, the prize for the most outstanding fundamental research in the medical sciences in Minnesota during 1932. Dr. Barton's thesis on "The Distribution of Intranuclear Inclusion Bodies Primarily Involving Vascular Endothelium" was based on observations made during his employment by the Bureau on certain microscopic pathological changes in the organs of foxes affected with infectious encephalitis.

Changes Official Station.--For approximately two months beginning October 12, Dr. L. C. Morley, who is engaged in the study of diseases of upland-game birds, will make his headquarters at the University of Minnesota, where he will pursue his studies in collaboration with Dr. R. G. Green of the Medical School of that institution. Many problems encountered by Dr. Morley during the past several years at Richmond, Va., are being correlated with observations made in the cooperative wild-life disease investigations in Minnesota and adjacent States. Dr. Shillinger, after accompanying Dr. Morley to Minneapolis, remained there for a few days making arrangements for the future activities to be conducted in cooperation with the University.

Wisconsin and Michigan Aid in Disease Investigations.--Interest in avoiding the waste of wild life due to disease is shown by the cooperation given the Bureau's project at the University of Minnesota. The conservation departments of Wisconsin and Michigan have been helpful in forwarding many grouse and other specimens for autopsy and study. Specially insulated ice containers have been provided by the Minnesota Department of Conservation and the University in order that specimens may be transported to the laboratory in a good state of preservation.

PREDATORY ANIMAL AND RODENT CONTROL

Returns to Washington.--Mr. Young returned to the Washington office on October 20 from an extended field trip throughout the Southwestern States, during which he interviewed State officials and cooperators in Oklahoma, Arkansas, Texas,

New Mexico, and Arizona, and inspected the work at several of the E.C.W. rodent-control camps. The work at some of these camps is being carried on by Indian crews, which are doing excellent work, Mr. Young reports.

Tells Rotarians of Bureau's Work.--On September 29, Mr. Young told Flagstaff (Ariz.) Rotarians about the work of the Biological Survey. The Coconino Sun, of Flagstaff, reports that he gave Rotarians an interesting picture of the work of the Bureau and that he "told of the work being done to conserve migratory wild fowl, and other game, and cited numerous instances where the research carried on by the department has resulted in saving the lives of thousands of the migratory birds."

Control Projects Approved for Relief Labor.--The Federal Emergency Relief Administration has approved predatory-animal and rodent control as projects for which relief labor may be supplied by local relief administrators. The Relief Administration pays for the labor and the Biological Survey provides supervision and furnishes equipment. Limitations have been placed on the employment of relief labor in order to distribute relief to the greatest number of people. Texas has used this labor to good advantage in rat control, and recent information indicates that 50 men will be given work on predatory-animal control in Yavapai County, Ariz.

Receive Local Cooperation.--The drastic reduction in State and Federal appropriations for predatory-animal and rodent-control work has necessarily curtailed public services, but counties and individuals are attempting to replace the funds formerly furnished by the States and by the Federal Government. J. C. Gatlin, leader in New Mexico, reports a continuation of the \$3,000 appropriation for pocket-gopher control by the Elephant Butte Irrigation District; L. C. Whitehead says that one county in Texas has appropriated \$6,000 for typhus-fever control; C. R. Landon is receiving cooperation from several county commissioners' courts in Texas for the employment of hunters; and Adolph S. Hamm announces that several groups of sheepmen in Wyoming are forming local associations to contribute funds toward the employment of hunters. It is expected that several other groups in Wyoming will provide funds for similar employments for limited periods under the supervision of the Bureau.

Motion Pictures Save Ducks.--Regional Supervisor D. A. Gilchrist reports that through the Department's motion picture entitled "Duck Sickness" thousands of ducks in Arizona were recently saved at a low cost. Assistant Leader C. E. Gillham having seen the picture on several occasions had become familiar with the symptoms of the duck disease. Upon receiving a report from the Indian Service that 100,000 ducks had died on Red Lake, near Lupe, Ariz., Mr. Gillham investigated, found some dead ducks, and, recognizing the disease, sent specimens of the afflicted birds to the Bureau's Food Habits Research Laboratory, at Denver, Colo. The matter was reported at once to officials of the Arizona State Game Department, and the film was shown to the Game Department personnel. The State officials acted promptly and, with the cooperation of the Indian Service, employed men to keep the ducks from the lake until rains had provided sufficient fresh water to check the ravages of the disease.

LAND ACQUISITION

Refuge Work with Recovery Funds Progresses.--Improvement projects on 30 migratory-bird refuges have been approved to be paid from funds allotted to the bureau by the Public Works Administration, as reported in THE SURVEY last month. Projects include the location and marking of boundaries of several western refuges and the preparation of plans for work on the Salton Sea Migratory Bird Refuge in southern California, the Salt Plains Migratory Bird Refuge in Oklahoma, the Big Lake Bird Refuge in Arkansas, the Savannah River Wild Life Refuge in South Carolina, and the Blackbeard Island Bird Refuge in Georgia. By the middle of October plans had been developed for the prosecution of work on fourteen of these projects, and several survey parties were already in the field. Because of curtailed personnel resulting from the economy program, it has been necessary to employ under temporary status a large group of civil engineers for this work. It is the aim of the Bureau to aid unemployment by supplying work to as many persons as possible and to complete the projects at an early date. It is recognized that thousands of competent engineers throughout the country have been without work for a long period, and it is hoped that the operations of this Division will in some degree contribute to the amelioration of this situation. Arthur A. Riemer is at present on a tour of inspection and instruction. His first stop was at the Big Lake refuge, in Arkansas, where improvements under the Public Works program have already been started. From there he proceeded to Salt Plains, Okla., to organize the work at that place. Bert J. G. Tousey, who has been detailed to the St. Marks Migratory Bird Refuge, Fla., in connection with the work conducted there by the C.C.C. camp, will have general supervision of the work to be done at the Big Lake and the Salt Plains refuges. Charles S. Cook has gone to the Salton Sea refuge, stopping en route in New Mexico and Arizona to pick up several engineers who will make the necessary surveys on that refuge. Several men will also be employed under Mr. Cook's direction to locate and establish the boundaries of the Carlsbad Bird Refuge in New Mexico and the Salt River Bird Refuge in Arizona.

Resigns.--After serving the Biological Survey for more than 8 years, Mrs. May R. Jeffries, clerk in the Washington office of this Division, resigned effective at the close of work on October 16, in accordance with the so-called married persons clause of the Economy Act. "Deep regret," says Mr. Dieffenbach, "is felt in the loss of Mrs. Jeffries. Both personally and officially she will be sorely missed in the organization." Mrs. Jeffries had served as secretary to Mr. Dieffenbach since 1929, when the Division of Land Acquisition was created. As Miss Agnes M. Reed, she was first employed by the Bureau in 1920, from then until 1924 being a member of the Division of Economic Investigations, now the Division of Predatory Animal and Rodent Control. Mrs. Jeffries resigned in 1924 because of domestic duties, but in 1928 was reappointed to the Bureau. She was in the Division of Game and Bird Conservation until her transfer to the new Division of Land Acquisition.

GAME AND BIRD CONSERVATION

Confers with Washington Officials.--United States Game Protector P. S. Farnham, of Owego, N.Y., was in the Washington (D.C.) office on September 27, conferring with Bureau officials.

Resume Wardei Duties.--United States Game Protectors Albert Stadlmeir and Frank Clarkson have returned to their permanent headquarters at Pleasantville, N.J., and Houston, Tex., respectively, to resume regular duties in connection with the enforcement of the Migratory Bird Treaty Act, after having been assigned to Civilian Conservation Corps camps since the first of July.

Establishes Temporary Headquarters.--United States Game Protector M. A. Charlton, of Columbus, Ohio, has established temporary headquarters at Evansville, Ind. His operating district will comprise portions of the States of Ohio, Indiana, Kentucky, and Illinois.

Transferred from Forest Service.--Miss Pauline Mixon was transferred from the Forest Service, at Athens, Tenn., on October 7, to the position of clerk-stenographer in this Division recently made vacant by the transfer of Miss Johanna Corsack to the Administration Division.

Rounds Up Song-Bird Killers.--On September 24, near the mouth of the DePage River, not far from Joliet, Ill., United States Game Protector Creech found 6 men, 4 women, and 2 children preparing to cook 2 flickers, 2 sapsuckers, 2 red-headed woodpeckers, 1 blue jay, 2 meadowlarks, 2 red-winged blackbirds, 3 brown thrashers, and 1 bluebird, which they had just killed. Mr. Creech seized the birds and the guns with which the birds were killed.

Young Ducks and Geese at Tule Lake Refuge.--According to a recent report received from Hugh M. Worcester, Reservation Protector at Tule Lake Bird Refuge, Calif., more young ducks and geese were seen on the refuge this season than during the past two years. Homesteaders in the locality informed Mr. Worcester that there was a larger hatch of young birds this year than for many years past, owing, it is believed, to the new dyke constructed on the east side of the refuge, which maintains the water level and prevents sheep and cattle from entering the area and destroying nests.

Canvasback Comes Early to Bear River Refuge.--The first canvasback of the season was seen on the Bear River Migratory Bird Refuge, Utah, on September 16, one of the earliest dates of appearance of canvasbacks at the refuge on their southward migration.

Detailed to Washington Office.--Vanez T. Wilson, assistant irrigation engineer, of the Bear River Refuge, has been called to Washington, D.C., to assist in the preliminary work incident to starting construction at various refuges under funds allotted to the Bureau by the Federal Emergency Administrator of Public Works.

Forest Motion Picture Shown at C.C.C. Camp.--An interesting motion picture was shown at the C.C.C. Camp, at the St. Marks Migratory Bird Refuge, Fla., October 2, by the Florida State Forest Service. The picture dealt with the growth of southern pine and the effects of fires, thinning, and proper management of the forest for profit, as well as the effect of fires on birds and wild game. Exhibits of southern-pine industries, such as naval stores and lumber products, were also shown.

Mourning Doves Increase at Big Lake.--Protector Steven B. Crossley reports that mourning doves on and near the Big Lake Bird Refuge, Ark., are more numerous this year than at any time since 1929. Herons, he says, also made a fine showing there this summer. There has been a 2-foot rise in the water level at Big Lake, and for the first time in three years there has been water on the refuge throughout the year.

Antelope Fawns at the Charles Sheldon Refuge Are Pets.--Ernest J. Greenwalt, in charge of the Charles Sheldon Wild Life Refuge, Nev., recently reported that for two weeks it had been impossible for anyone to leave the house afoot without having two antelope pets tag along. "In three months," he states, "both have grown greatly and are much larger than the average fawns on the range. The horns of the buck now protrude a half inch through the curl of hair at the base, but the doe's so far can only be felt as small nubbins. Already 'Legs', as the buck is called, has developed the butting instinct. With slight pressure of the hand on his head he braces his feet and pushes back, and he loves the game. When the butting grew too strenuous for the doe, she retreated and now stays away. For a time also the buck got a reaction from the pet lambs, but they too found they are no match for the antelope and refuse to play that game. Legs later transferred his butting to the milk cow, jamming his head at her sides when she was lying down or charging at her head when she was feeding. For these efforts he was rolled over and over in the dust several times and now is less belligerent. We thought he was 'cured' but the other day a stray cow brought her calf into the field and we were greeted with the sight of Legs chasing it around the meadow, vainly trying to get it to pause long enough for him to practice a little headwork."

Reservation Protectors Appointed.--Wayland E. Shannon has been reappointed United States Deputy Reservation Protector at Brevard Bird Refuge, Fla., during the nesting season of the brown pelicans. The following persons have been re-appointed United States Reservation Protectors and United States Deputy Game Wardens during the open seasons: Robert E. Towle, at Deer Flat Bird Refuge, Idaho; Ellsworth Nichols, at Cold Springs Bird Refuge, Oreg.; and Clifford O. Kreider at Nine Pipe and Pablo Bird Refuges, Mont.

Upper Mississippi Shooting Fair; Birds Seek Refuge.--In spite of the fact that the waterfowl-hunting season in the Upper Mississippi River area opened with the water in the river the lowest since records of water levels on the upper Mississippi have been maintained, which has been for the past 80 years, hunting was described as being at least fair in areas adjacent to the Upper Mississippi River Wild Life and Fish Refuge. The season in Wisconsin opened on September 21 and was accompanied by weather of nearly midsummer heat, which in itself made hunting conditions exceedingly poor. On the other hand, the opening of the season in Minnesota and Iowa on October 1 was marked by considerably cooler weather, and in Minnesota particularly there was good shooting on the opening day and immediately following. Hunters say that in the Minnesota areas adjacent to the refuge they enjoyed the best hunting they have had in recent years. According to rangers patrolling the closed areas, however, a substantial portion of the birds in the vicinity found sanctuary in the refuge closed areas soon after the season opened and have since remained there.

Channel Program Speeds Up.--The War Department's program for canalization of the upper Mississippi River through construction of a series of low dams that will inundate at more or less shallow depths considerable portions of the river bottom lands, including areas belonging to the Upper Mississippi River Refuge, has received a new impetus through the allocation of about \$33,000,000 in connection with the Federal public works program. With the huge locks at Alma, Wis., and Whitman, Minn., approaching completion, contracts have recently been awarded for construction of the dams and dikes at these places. It has been announced that by January 1 additional contracts will have been awarded for the construction of locks next downstream at Winona, Minn., and at Trempealeau, Onalaska, and Genoa, Wis. At the same time a similar comprehensive program is under way at the southern end of the refuge. In addition, bids have been solicited for removing the timber from the Alma pool area, several thousand acres of which comprise refuge lands. With the work of constructing these dams now being prosecuted with such vigor, sweeping changes are in prospect for the refuge within a comparatively short time. These changes, bringing higher and more stabilized water levels will result in an increased extent of marshland and marginal areas, conditions decidedly favorable to the refuge through the production of more valuable habitat for migratory waterfowl.

C.C.C. Camp Established at McGregor.--A State Civilian Conservation Corps camp is being established near McGregor, Iowa, to make improvements on upland portions of the Upper Mississippi River Refuge. Much work is planned for the Pikes Peak area overlooking the confluence of the Mississippi and Wisconsin Rivers. Since its donation by Dr. James Buell Munn of New York University several years ago, this area has had considerable attraction for the public. The work to be undertaken by the Conservation Corps includes constructing a guard wall around the brink of the cliff, improving trails and switchbacks used by the public, cleaning up fire hazards, and control measures to prevent damage from erosion.

Importations.--Among the more interesting birds imported during the month were 8 cock of the rock (Rupicola rupicola) and 58 hummingbirds of several undetermined species from Brazil, entered at New York and San Francisco.

Parrakeets Die in Quarantine.--Of a shipment of 100 parrakeets, which recently arrived at New Orleans from Cuba, 83 died during the quarantine period, according to a report from the Collector of Customs at New Orleans.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
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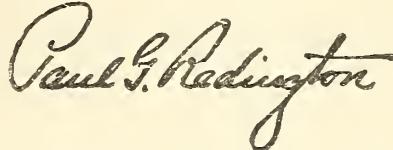
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Washington, D.C., November-December 1933

No. 11-12

ANOTHER YEAR has rolled around and Christmas again is near. In spite of several adversities, the members of the Biological Survey have continued to advance the work for which our organization is chiefly responsible. A reduction in our regular funds has unfortunately made it necessary during the past year to furlough, transfer, or to take off the rolls a number of our employees, and this we deeply regret. We have been given financial aid from other Governmental sources, however, and with the combined financial set-up we have been able to put our house in order in many respects. I hope and trust that many who have had to leave the ranks of the Survey may be reinstated as better times prevail. In the meantime I am sure that we can count on everyone in our Washington and field offices to support loyally the policies of the Bureau and to carry them forward--each to the best of his ability. I am thankful for the generous cooperation not alone of the men and women within the Survey but also of thousands of others who have given us help and advice. May we go into the New Year with hope and with confidence that there will be an early return of better conditions. Therefore, a Merry Christmas and a Happy New Year!

Washington, D.C.
December 18, 1933.



GENERAL NOTES

Chief Reports Good Will in the West.--Mr. Redington returned to Washington on November 2 from an inspection tour of the West. Having met the officials of many organizations, the Chief expressed his gratification at the cooperative spirit shown by the various conservation officials toward the Survey and the loyalty and interest of the field men with whom he had opportunity to discuss the work and problems of the Bureau. After leaving Portland, Oreg., on October 20, Mr. Redington conferred at Jennings Lodge, Oreg., with William L. Finley, a member of the Advisory Board, Migratory Bird Treaty Act, and in Salem he met Senator McNary at his home. En route to San Francisco Mr. Redington had an interesting conference with S. E. Piper, who is

studying the habits of birds that are injurious at times to agriculture, horticulture, and forestry. In San Francisco the Chief conferred with members of the Associated Sportsmen of California and of the California Woolgrowers Association and also visited the offices of the State Fish and Game Commission. There he had a long conference with the executive officer of the commission, who indicated that he would do his best to assign as many of his wardens as possible to cooperate with the Federal game protector during the open season on waterfowl and that he would send out men to work with officers of the Bureau assigned to study waterfowl feeding and baiting. In San Francisco Mr. Redington also made contacts with one of the game commissioners and with officers and members of the State Chamber of Commerce and conferred with I. N. Gabrielson. In Los Angeles Mr. Redington met the officers of the Automobile Club of Southern California, who, he reports, are very much interested in the Bureau's work. In Fontana the Chief, with Frank G. Ashbrook, inspected the work of the Rabbit Experiment Station and discussed the work there with A. B. Miller, who was principally responsible for seeing that the Bureau obtained the site and buildings for this station. In Los Angeles again Mr. Redington called on the president of the State Fish and Game Commission, and at the local offices of the Department's Extension Service and the Forest Service. He left Los Angeles by plane at 8 a.m. on Wednesday, November 1, and flew to Washington in 27 hours. During the flight over western Arizona, a severe head wind, he reports, was encountered, and, while the passengers did not know it at the time, the plane reached an altitude of nearly 17,000 feet. Again, in leaving Amarillo, Tex., the passengers were treated rather roughly as the plane passed through an area heavily disturbed by lightning and heavy rain.

Attend A.O.U. Semicentennial Meeting.--Five members of the Biological Survey presented papers at the fifty-first stated meeting of the American Ornithologists' Union, held at the American Museum of Natural History, New York City, November 14 to 16. Five others officially represented the Bureau at this meeting, which celebrated the Union's semicentennial anniversary, and in addition four members of the Survey attended at their own expense. At the opening session on Tuesday, November 14, Miss Phoebe M. Knappen discussed "The Washington Monument Again a Bird Menace", and at the general session on Wednesday morning Thos. D. Burleigh reported on "A Critical Study of the Distribution and Abundance in Migration of Dendroica castanea and D. striata in the Southeastern States." Three members of the Bureau were on the program for the game-bird session Thursday morning. Dr. Harry C. Oberholser spoke on "The Present Status of Our Waterfowl," Clarence Cottam on "The Eelgrass Shortage in Relation to Wild Fowl", and Frederick C. Lincoln on "Restocking Waterfowl Marshes with Hand-reared Ducks". A memorial volume issued in connection with the "Fifty Years' Progress of American Ornithology 1883-1933" contained chapters contributed by former and present members of the Biological Survey. These are: "A Brief History of the American Ornithologists' Union," by Dr. T. S. Palmer; "Development of Our Knowledge of Fossil Birds," by Dr. Alexander Wetmore; "Bird Banding," by F. C. Lincoln; and "Economic Ornithology," by W. L. McAtee. On November 17, under the auspices of the Long Island State Park Commission, a number of the members visited the Hempstead Lake Park, the Jones Beach State Park, and the Jones Beach State Bird Sanctuary, observing fresh-water and salt-water ducks and coastal birds. They also made a trip across Great South Bay, for the observation of waterfowl. On Saturday morning, at the invitation of Dr. T. Gilbert Pearson, president of the National Association of Audubon Societies, more than 40 members visited the Roosevelt Bird Sanctuary at Oyster Bay, Long Island. About 30 others observed birds on Barnegat Bay. In ad-

December 19, 1933.

MEMORANDUM TO MEMBERS OF THE FIELD FORCE

If you should read any editorial or other comments on the Annual Report of the Secretary of Agriculture, which was released on December 15, it would be much appreciated if you would clip the items (showing names and dates of newspapers) and send them promptly to the Bureau at Washington. Mr. Wallace desires to collect as much information on this subject as possible.



dition to those who were on the program, the Bureau was officially represented at the meeting by Mr. Henderson, W. L. McAtee, R. W. Williams, E. A. Preble, and Arthur H. Howell. Other members of the Bureau who attended were Miss May T. Cooke, C. H. M. Barrett, Mrs. Jane S. Elliott, and Miss Ethel N. Jett.

Reelected.--W. L. McAtee, who for 13 years has been treasurer of the American Ornithologists' Union, was again reelected at the Union's recent meeting in New York, and Dr. H. C. Oberholser was renamed a member of the Council. Dr. T. S. Palmer, of 1939 Biltmore Street, Washington, D.C., retired member of the Biological Survey, was reelected secretary of the Union. Dr. Palmer has held this office since 1917.

Tells Radio Audience of Waterfowl Crisis.--On November 12 Mr. Henderson spoke over the radio on the subject "A Critical Time for Ducks and Geese". His talk, delivered under the auspices of the Rod and Stream Department of the Washington (D.C.) Evening Star, was broadcast by Station WMAL in Washington. For several years, said Mr. Henderson, our waterfowl have been in a bad plight, and the present situation is almost as serious as the 1931 emergency that led to a one-month season and induced the President to issue a proclamation in behalf of the birds. Mr. Henderson pointed to overshooting as one of the chief causes of the decrease in waterfowl and the only one that can be remedied immediately. Obviously, he stated, the first thing to be done is to reduce the kill in order to make sure of saving a satisfactory breeding stock. With a breeding stock provided for, we should proceed at once, he said, to carry out the program already undertaken to restore water areas, to set aside sanctuaries, and through research, to find whatever practical means there may be to increase the production of ducks and geese by helping them against their enemies, and by preventing the losses occasioned by disease. All these things, he explained, will be of the greatest benefit ultimately, but most of them require time measured in years as well as adequate financial support. Mr. Henderson urged every sportsman to be moderate in shooting, to see that the kill is made chiefly from the more abundant species, and to encourage the same practices among others. He also urged gunners to retrieve all crippled birds.

Describes Cave Life of Kentucky.--The entire September issue of The American Midland Naturalist was devoted to the publication of Vernon Bailey's report on the general natural history of the Mammoth Cave (Ky.) region, now under consideration as a national park. The work, entitled "Cave Life of Kentucky, Mainly in the Mammoth Cave Region", cited in last month's issue of THE SURVEY, includes chapters by Mr. Bailey on the mammals, fishes, reptiles, and amphibians; an account of the birds of the cave region, by Florence Merriam Bailey in cooperation with the Biological Survey; and a chapter on the invertebrates, by Leonard Giovannoli, formerly of the Kentucky Geological Survey. In the introductory pages Mr. Bailey discusses the history and prehistory of Mammoth Cave, the roads and rivers of the region, the need for further research, and the educational possibilities of Mammoth Cave and the many other caves around it. He also describes the vegetation and ecology of the region and its game and wild life. The articles contain 90 illustrations, including numerous scenes in Mammoth Cave. Many of the illustrations are reproduced from Biological Survey photographs, and a large number are from the Bureau's drawings made by L. A. Fuertes. The manuscript, said Mr. Redington in transmitting it to the editor of the Midland Naturalist, "was prepared in the U. S. Biological Survey in 1930, at the request of the Kentucky State Geological Survey. It was the intention of that organization to publish the report as one of its bulletins, but the subsequent abolishing of the survey

makes that disposition impossible. It is now offered to the American Midland Naturalist for publication in such form as will admit of the widest possible distribution to the interested public." The article has been republished as a 256-page book attractively bound in cloth and for sale by the University of Notre Dame, Notre Dame, Ind.

Address Washington Biologists.--Three members of the Biological Survey presented papers at the December 2 meeting of the Biological Society of Washington (D.C.), which was devoted to bird study. Miss Phoebe Knappen spoke on "The Washington Monument Once Again a Bird Menace", and F. C. Lincoln on "Restocking Waterfowl Marshes with Hand-reared Ducks." Dr. J. E. Shillinger showed motion pictures and talked on "A Destructive Disease Affecting Waterfowl." Dr. T. S. Palmer also gave a resume of the recent meeting of the American Ornithologists' Union.

Official Publications have been received as follows:

Report of the Chief of the Bureau of Biological Survey, 1933, by Paul G. Redington. Annual Report, 1933, 32 pp. Received November 14.

Pocket-gopher control, by W. E. Crouch, Senior Biologist, Division of Predatory Animal and Rodent Control. Farmers' Bulletin No. 1709, 20 pp. September 1933. Received November 15.

Mole control, by James Silver, Associate Biologist, and A. W. Moore, Junior Biologist, Division of Predatory Animal and Rodent Control. Farmers' Bulletin 1716, 18 pp., November 1933. Received December 13.

Amendment of regulations 4 and 5 of the regulations respecting game animals, land fur-bearing animals, game birds, nongame birds, and nests and eggs of birds in Alaska. Alaska Game Commission Circular No. 11, Supplement, 2 pp., October 1933. Received November 17.

Winter food of the ruffed grouse in the Northeast. Leaflet Bi-1297, 2 pp., October 1933. Received November 3.

Feed requirements in raising weaned rabbits to a weight of 6 pounds, by Chas. E. Kellogg, Biologist, Division of Fur Resources. Leaflet Bi-1304, 4 pp., November 1933. Received November 14.

The wild fowl situation in North America. Address by W. C. Henderson at the annual meeting of the National Association of Audubon Societies, at New York City, October 30, 1933. 6 pp. Received October 30.

Abstract of fur laws 1933-34. 26 pp. October 1933. Received October 31.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follow

Bailey, Vernon. Trapping animals alive and uninjured. Cornell Rural School Leaflet 27 (1): 9-25, illus. September 1933.

Goldman, E. A. New mammals from Arizona, New Mexico, and Colorado. Jour. Wash. Acad. Sci. 23 (10): 463-473. October 15, 1933.

Green, R. G., Shillinger, J. E., and Hanson, K. B. (With Katter, M. S., Univ. Minn.) Epizootic fox encephalitis. IV. The intranuclear inclusions. Amer. Jour. Hyg. 18 (2): 462-481, illus. September 1933.

Henderson, W. C. Alarming condition of our waterfowl. Parks and Recreation 17 (2): 64-67. October 1933.

Lincoln, F. C. Duck flights. *Natl. Waltonian* 1 (4): 6, illus. October 1933.

----- State distribution of returns from banded ducks. *V. Bird Banding* 4 (4): 177-189, illus. October 1933.

----- Bird banding. *In Fifty years' progress of American ornithology, 1883-1933:* 65-87. November 1933.

----- White pelicans lead their young to water. *Condor* 35 (6): 238-239. November-December 1933.

McAtee, W. L. Hawks eating dragonflies. *Ent. News* 44 (9): 235. November 1933.

----- Economic ornithology. *In Fifty years' progress of American ornithology, 1883-1933:* 111-129. November 1933.

Neff, Johnson A. The tri-colored redwing in Oregon. *Condor* 35 (6): 234-235. November-December 1933.

Nelson, A. L. Golden-winged warbler feeding on larvae of *Talponia plummeriana*. *Auk* 50 (4): 440-441. October 1933.

Nelson, E. W., and Goldman, E. A. A new subspecies of the snail kite, *Rostrhamus sociabilis* (Vieillot). *Biol. Soc. Wash. Proc.* 46: 193-194. October 26, 1933.

----- and Goldman, E. A. Three new rodents from southern Mexico. *Biol. Soc. Wash. Proc.* 46: 195-198. October 26, 1933.

Palmer, L. J. (With Ellis, N. R., senior author, and Barnum, G. L., Bur. Anim. Indus.) The vitamin content of lichens. *Jour. Nutrition* 6 (5): 443-454. September 1933.

Preble, E. A. Wild life declining. *Wash. (D.C.) Post*: 6. November 5, 1933.

Redington, P. G. Harmony in wild life protection. A message to American sportsmen. *Outdoor Life* 72 (6): 26-27. December 1933.

Scheffer, Theo. H. Replacement-and-increase ratio in species. *Murrelet* 14 (3): 51-54. September 1933.

----- Breeding of the Washington varying hare (*Lepus washingtonii*). *Murrelet* 14 (3): 77-78. September 1933.

ADMINISTRATION

Comptroller General Rules Against Increased Mileage Rate.--A higher rate of mileage cannot be allowed for the use of a personally-owned automobile when the owner transports other Government employees and so effects a saving to the Government in transportation costs, according to the decision of the Comptroller General of June 27, 1933, A-49323. Disallowances are being made on the basis of the new ruling, which states: "Neither the act of February 14, 1931, 46 Stat. 1103, nor the appropriation act as made available by section 206 of the Economy Act of June 30, 1932, 47 Stat. 405, for travel by an officer's own automobile contemplate reimbursement to such officer of other than his personal travel. When one or more officers or employees accompany such owner the measure of reimbursement to such additional travelers is the actual and necessary expense incurred by them. A determination in the travel orders that four cents a mile would be more economical and advantageous to the United States for travel by the owner alone entitles the owner to that rate, if otherwise proper. That determination having been made there is no authority to fix any other or different rate based upon contingencies arising during the travel. The statute authorizes reimbursement to the traveler for his travel in his own personally owned automobile; it constitutes no authority for paying the traveler as a carrier of other Government personnel. . . . The fact that the mileage claimed at seven cents a mile was less than the rail fare that would have been paid had the three officers traveled by train is no basis for any allowance in excess of that

authorized by law and the order for the mode of travel employed. The traveler using his own automobile is not entitled to function as a common carrier, nor has he the burden of such a carrier."

Appointed.--Effective November 16, Miss Louise Van Osdel was by reinstatement appointed assistant clerk-stenographer in this Division to assist in work connected with the NIRA. Miss Van Osdel has at various times served for short periods in the War Department, the Federal Trade Commission, the Capitol, and the Bureau of Entomology, and from 1923 to 1931 she was secretary to Representative Henry Allen Cooper. She was recently employed temporarily in the Bureau of Agricultural Engineering.

BIOLOGICAL INVESTIGATIONS

Inspects Shipment of Reindeer Carcasses.--From November 27 to 29, Dr. Bell was in New York City inspecting a shipment of reindeer carcasses from St. Michael, Alaska, which arrived at New York on the Grace liner Santa Paula.

Attends Meeting of Land Grant Colleges.--Dr. Bell attended the 47th annual convention of the Association of Land Grant Colleges and Universities, at Chicago, Ill., November 13 to 15. He reports interesting discussions of problems dealing with research policies and interrelationships between the State agricultural colleges and experiment stations and the United States Department of Agriculture, as well as of plans for improving agricultural and industrial conditions.

Observe Waterfowl on Susquehanna Flats.--On November 8, Dr. Bell and Dr. H. C. Oberholser, accompanied by Talbott Denmead, of the Bureau of Fisheries, and E. Lee LeCompte, State Game Warden for Maryland, noted waterfowl conditions on the upper part of Chesapeake Bay, especially on the Susquehanna Flats. The party also observed conditions near the Edgewood Arsenal and the Aberdeen Proving Grounds. Cold weather to the northward had brought numbers of canvasbacks and whistling swans to this important winter-concentration area ahead of their usual migration period.

Studies Waterfowl Conditions in Great Lakes Region.--F. C. Lincoln returned to Washington on November 17, after spending a month in the waterfowl marshes of eastern Michigan, northern Ohio, and western New York. He reports that marsh ducks, especially black ducks and mallards, were plentiful generally, and the baldpate and pintail locally. Diving ducks were not so numerous, although on October 23 Mr. Lincoln noted a considerable concentration of canvasbacks on the Canadian side of Lake St. Clair. Redheads were not common, except on Seneca and Cayuga Lakes in western New York. Mr. Lincoln says that natural food for waterfowl was abundant at nearly every point he visited and that gun clubs were feeding great quantities of grain, mostly corn.

Reports Few Ducks in Currituck Sound Region.--Dr. H. C. Oberholser, on November 10 and 11, was studying waterfowl conditions in the Back Bay and Currituck Sound region. He reports food conditions poor on account of the influx of salt water during the August storms. Ducks were seen by him only in limited numbers on a few favorable natural feeding areas and in places where the birds were being fed.

Surveys Waterfowl Conditions in Northern Plains States.--C. M. Aldous, who has been engaged in a survey of waterfowl conditions in Wisconsin, Minnesota, North Dakota,

South Dakota, and Iowa, says that snow and freezing weather sent a large part of the ducks south unusually early. He reports that he received hearty cooperation from the State wardens in his study of the numbers of waterfowl and of their food supplies.

Visits Bear River Refuge.--L. J. Goldman, en route from Washington, D. C., to his field station in California, spent October 25 at the Bear River Migratory Bird Refuge, Utah, observing wild-fowl conditions. He has now arrived at headquarters at Berkeley, Calif., and is engaged in further studies of conditions affecting waterfowl in California.

Transplanted Buffalo Thrive in Alaska: Number is Doubled.--The herd of 23 buffalo transplanted to Alaska 5 years ago has thrived and more than doubled in number, according to a report from L. J. Palmer. The animals, recently observed in two herds on the Jarvis Creek flats southeast of Fairbanks, now number 60, including calves and yearlings. The Alaska Game Commission and the Biological Survey in 1928 transferred the buffalo to the Territory from the National Bison Range in Montana. Funds for the purpose were appropriated by the Territorial Legislature. In spite of some fatal accidents, the animals soon accommodated themselves to the new environment, and by 1931 their number had increased to 29. The transplanted herd is of special interest because the animals composing it are the first to live in that region in recent times. In the Pleistocene era the group was represented by other species now long extinct and apparently larger than the modern ones. The nearest wild buffalo now live a thousand miles away in the region of Great Slave Lake, in the Mackenzie Valley of central Canada. These are closely related to the form now being established in the region where their prehistoric relatives lived so long ago.

FOOD HABITS RESEARCH

Study Wild-Fowl Baiting.--Neil Hotchkiss and A. C. Martin left Washington on November 13 and 15, respectively, to study wild-fowl baiting in the Southeastern States. Other workers participating in the project, as outlined in the last issue of THE SURVEY, have been in the field for some time.

Investigates Reported Damage to Grain by Wild Fowl.--From October 15 to 21, Cecil S. Williams investigated a complaint of damage to grain by wild fowl in the vicinity of Amarillo, Tex. The report proved to be unfounded.

FUR RESOURCES

Attends Fur Show and Chamber-of-Commerce Luncheon in Seattle.--Mr. Ashbrook, who is at present acting as director of the Rabbit Experiment Station, attended the fur-animal show of the Puget Sound Fox and Fur Farmers Association, at Seattle, Wash., December 5 to 7. At the invitation of the Seattle Chamber of Commerce, Mr. Ashbrook attended a luncheon given by that organization on December 1 and spoke on fur farming and its developments in the United States. The Chamber of Commerce made arrangements with the retail fur dealers association to exhibit some fur styles at this luncheon, which was a forerunner of the show.

Visit Los Angeles Furriers and California Fur Farms.--During the latter part of October Mr. Ashbrook visited furriers in Los Angeles to ascertain local fur-market conditions and the progress being made by the industry in presenting codes to the Federal Government. He also discussed with the county agent and county livestock department of Los Angeles County the State Agricultural situation in relation to

the Bureau's rabbit investigations. Mr. Ashbrook also visited 5 silver-fox ranches in the Big Bear and Pine Knot sections of the San Bernardino Mountains, where he noted that the ranchers had developed more economical methods of feeding and handling foxes. He reports that there are 15 fur farms in these mountains, all of which seem to be in good financial condition. On both of these trips Mr. Ashbrook was accompanied by Dr. F. D. McKenney, of the Disease Investigations Project, who is at present located at the Rabbit Experiment Station. At the silver-fox farms Dr. McKenney was particularly interested in conferring with the ranchers on their fox-disease problems.

Talks to Chamber of Commerce Board.--Mr. Ashbrook recently attended a meeting of the Tri-County Advisory Board of the Chambers of Commerce of San Bernardino, Orange, and Riverside Counties, in Riverside, Calif., and spoke on the work conducted at the rabbit station. He also solicited cooperation in suppressing fraudulent schemes to sell rabbits.

Donates Rabbit Hutches for Prizes.--Much interest is reported in 4-H rabbit-club work in southern California, particularly in the vicinity of Fontana. Allen E. Suitor, of the Rabbit Experiment Station, is taking a prominent part in assisting rabbit-club leaders. He is subject-matter advisor for the 4-H Cloverleaf Rabbit Club of Fontana, which has met several times at the station. To encourage the rabbit work, this club is offering 4 two-compartment hutches as prizes to members of other 4-H rabbit clubs in San Bernardino County. A rabbit hutch will be given to the best first-year club member, one to the best demonstration team during the year, another to the junior or senior rabbit-club member who completes the best rabbit project during the year, and the fourth to the 4-H Cloverleaf Rabbit-Club member who is judged the best all-round member. The 4-H Cloverleaf Rabbit Club and 10 members of other rabbit clubs of San Bernardino County visited the Rabbit Experiment Station recently, and one of the members gave a splendid demonstration of killing and dressing rabbits for market. The several members of the staff of the station gave talks on the work being carried on there.

Makes Inspection Trip.--Chas. E. Kellogg left Washington, on November 12, for New York City and Saratoga Springs, N.Y. In New York he conferred with raw-fur and fur-trade officials and editors. He spent two days at the Fur-Animal Experiment Station, Saratoga Springs, N.Y., discussing the station's work with Dr. Karl B. Hanson and inspecting the construction in progress there under funds allotted to the Bureau by the Public Works Administration. Work on the feed-storage building was begun on November 1, and plans for repairing buildings, fences, and pens, and for constructing new fur-animal pens are being prepared. Mr. Kellogg returned to Washington on November 17.

Talks on Fur Farming.--On October 24, W. G. McBlain, Jr., of the Fur Animal Station, addressed the Young Men's Discussion Club, of the Saratoga Springs (N.Y.) Y.M.C.A., on fur farming. He illustrated his talk with the Department's motion picture "How to Handle Foxes."

Breeders Express Appreciation.--Mr. Ashbrook was recently honored in the following resolution: "The Illinois Silver Fox and Fur Breeders' Association at their fall meeting held November 16, 1933, in Chicago, in appreciation of the continued interest

and help of Mr. Frank G. Ashbrook of the Bureau of Biological Survey, extended to the fur breeders and especially fox breeders and the recent assistance in inducing the Department of Agriculture to recognize the fox farmers as coming under that head, also the help in obtaining loans on fox pelts, resolve to extend to him a vote of thanks and appreciation and our best wishes for his continued success." The resolution was transmitted to the Bureau by the secretary of the association.

DISEASE INVESTIGATIONS

Tularemia Studies Progress.--On November 1, Dr. Shillinger returned to Washington after spending three weeks in the North Central States, where excellent progress is reported on disease studies with reference to the cyclic disappearance of game. All specimens collected are carefully examined for disease, and tularemia is the one encountered with greatest frequency. During the past few months more cotton-tail rabbits, snowshoe hares, grouse, and muskrats have been found infected with this disease. Ticks, fleas, and other external parasites found on these subjects have also been proved to harbor the germs. Many interesting phenomena on the nature of the organism causing tularemia, its virulence under varying conditions, and the immunity of recovered subjects are being discovered in the cooperative activities conducted in the Department of Bacteriology and Immunology at the University of Minnesota.

Finds Increasing Interest in Wild-Life Diseases.--En route to Washington Dr. Shillinger conferred with conservation officials and scientists in Wisconsin, Michigan, and Ohio. Everyone with whom he discussed conditions in those States showed an active interest in the role of disease in the loss of wild life. While game populations are high in most of the North Central States, a pronounced decrease has been noted in some localities, and officials fear that in these places epizootics that may spread extensively are now beginning.

Rabbit Losses Heavy.--Dr. F. D. McKenney, who is at present stationed at the United States Rabbit Experiment Station, Fontana, Calif., reports that in an outbreak of myxomatosis in the vicinity of San Diego the losses were so severe in some rabbitries as to put some producers out of business.

Virginia Scientists Help Richmond Laboratory.--Commending the Bureau's wild-life disease investigations in Virginia, the Board of Directors of the Virginia Academy of Science recently provided for additional equipment to be used at the Bureau's Richmond laboratory by Dr. L. C. Morley. The recognition given the Survey's disease-investigation work by these scientific workers, says Dr. Shillinger, is gratifying.

PREDATORY ANIMAL AND RODENT CONTROL

Typhus-Fever Project Approved.--The Civil Works Administration, on December 7, approved an extensive program of typhus-fever control in Georgia, Alabama, and Texas, to be undertaken jointly by the Survey and the Public Health Service. The Bureau's part of the program is the control of rats, which act as hosts for the fleas that transmit typhus-fever germs to human beings. There has been a decided increase in the number of cases of the disease reported in these States during the past three years, and intensive antirat campaigns in Texas have demon-

strated that the disease can be effectively controlled by curbing the rat population. The Public Health Service will carry on investigations to determine disease foci, will trap and examine rats, and will demonstrate various health measures in connection with the program. The funds allocated for the Biological Survey's part of the program total \$1,290,000, of which \$1,035,250 will be used to furnish about 10,000 jobs for 2 1/2 months. The men employed, working in small crews, will distribute baits, traps, and similar material. For the purchase of supplies, supervision, and the transportation of labor and equipment, \$254,750 has been provided. Regional Supervisor James Silver will have charge of the campaign, and Leaders Carlyle Carr, Roy Moore, and L. C. Whitehead will supervise the work in their respective States. Assistant W. E. Riter, of Colorado, O. E. Steph, of Montana, and H. H. Haecker, of South Dakota, have been detailed to aid in the work. All these men reported for a conference in Washington on December 13, previous to starting the work.

The Civil Works Administration, while approving the typhus-fever project, disapproved a request for \$759,900 with which to employ for 3 months 34 supervisory employees, 605 predatory-animal hunters for the West, and 19,279 unskilled laborers for antirat campaigns in eastern cities of 25,000 population or less. A previous request for \$598,000 for predator and rodent control is still before the Public Works Administration, the Department having recently requested reconsideration.

Biological Survey Pan Spring Patented.--Patent No. 1940296, Serial No. 590865, dated December 19, has been issued to Albert M. Day for the Biological Survey pan spring developed about two years ago to safeguard small mammals and birds and to increase the efficiency of trappers. The patent has been dedicated by Mr. Day to the free use of the public. Approximately 8,000 of these trap-pan springs are now in use by Bureau and cooperative trappers, and a trap company has now put them on the market.

Indian Women Use Clubs.--Mr. Young, who returned on October 20 from an extended field trip throughout the Southwest, reports an amusing occurrence on the southern Navajo Indian Reservation this summer. Several Civilian Conservation Corps crews of Indians with white foremen engaged in prairie-dog control were ambushed by Navajo women armed with clubs. The Indian women in this particular area, Mr. Young explains, were motivated by a fondness for prairie-dog stew and a legendary respect for this rodent. Inspite of the danger from flying clubs, however, the Indian crews proceeded with their control work, and in a short time the tribe realized that the saving in range grasses and crops was decidedly more advantageous than maintaining an overbundance of prairie dogs. During the latter part of the season groups of Indians who had been antagonistic came to the crew foremen imploring aid in prairie-dog control before the crew left the area. As a result, whole-hearted cooperation developed, and at the close of the season a satisfactory control job had been accomplished.

Control Porcupines in the Southwest.--Leader B. E. Foster, of the Arizona district, reports that during the first quarter of the fiscal year rodent-control crews operating from three C.C.C. camps on the Tusayan and Coconino National Forests treated 177,600 acres of timber heavily infested with porcupines. Both hunting and poisoning methods were used. Poison blocks were placed in selected rest trees, and many porcupines were shot. Daily maps were prepared by the foremen and detailed records of poison lines were made, showing the line number and the number of tree stations

placed on each route. This information will be used when the work is checked next spring for rebaiting trees at which porcupines have been killed. Blocks which show no results will be removed.

Requests for Aid in Controlling Predators in Texas Increase.--More requests for assistance in controlling predatory animals in the Texas district were received during the first quarter of the fiscal year than during any equal period in the past four years, according to Leader C. R. Landon. Cooperators also have shown a willingness to assist in a financial way, owing largely to recent increases in the value of wool and mohair. When these products were selling for less than the cost of production, stockmen were unable to defray the customary portion of the expense of controlling predators. As a result, many areas that were comparatively free of coyotes and wolves two years ago have become reinfested to so great an extent as materially to increase the loss of livestock. Now that stockmen are more secure financially, they are again beginning an aggressive fight against these animals and are urging the increased assistance and cooperation of the Bureau.

Pocket-Gopher Bulletin Popular.--The first run of 10,000 copies of Farmers' Bulletin No. 1709, Pocket Gopher Control, by W. E. Crouch, issued in November, was practically exhausted by December 1, and a reprint has been ordered.

"Stanley G. Jewett: Authority on the birds of Oregon, co-author of the 'Birds of the Portland Area' (Pacific Coast Avifauna No. 19), and member of the Cooper Ornithological Club since 1909" is the legend appearing under a portrait of Mr. Jewett in the November-December 1933 issue of The Condor (p. 245).

LAND ACQUISITION

Road Construction on Refuges Progresses.--At the St. Marks Migratory Bird Refuge, Fla., the construction of the road from Newport to the refuge headquarters and from headquarters to the lighthouse is progressing satisfactorily. The road leading from Newport to the headquarters site is now complete with the exception of replacing temporary culverts and constructing 2,000 feet of road. At the Swanquarter Migratory Bird Refuge, N. C., the low bid for borrow-pit construction has been accepted and the building of the road between the Swanquarter-Bellhaven highway and the refuge headquarters on Rose Bay can now be started.

To Increase Attractiveness of Salton Sea Refuge.--Charles S. Cook is now in California, where he has charge of the proposed posting and improvement work on the Salton Sea Migratory Bird Refuge. The Bureau plans, if possible, to impound fresh water by building dikes, and thus increase the area's attractiveness to birds. At present most of the area under control is covered with water of a high degree of salinity, and the refuge is of value principally as a resting place only for migrant waterfowl. Creation of fresh-water areas will increase immensely the value of the refuge. Mr. Cook also has charge of the boundary survey and posting on the Carlsbad, N. Mex., and Salt River, Ariz., refuges.

Improvement Work Under Way on Refuges.--Arthur A. Riemer left Washington on October 10, 1933, to confer with the engineers in charge of improvement work at the following migratory bird refuges: Big Lake, Ark.; Salt Plains, Okla.; Railroad Valley, Nev.; Strawberry Valley, Utah; Deer Flat and Minidoka, Idaho; Pathfinder, Wyo.;

Upper Klamath, Oreg.; Clear Lake, Calif.; and Benton Lake, Mont. All these projects are financed under the Public Works program, and with the exception of those at Big Lake, Salt Plains, and Railroad Valley, consist of surveying and posting boundaries. The work at the Railroad Valley refuge is concerned chiefly with developing and impounding additional water supplies to render the refuge more attractive for water-fowl. Preliminary surveys for similar improvements at the Big Lake and Salt Plains refuges are progressing satisfactorily, reports Bert J. G. Tousey, who is in charge.

Transferred.--Miss Margaret A. Roberts, clerk in the Division of Game and Bird Conservation, has been transferred to this Division to fill the position made vacant by the resignation of Mrs. May R. Jeffries.

GAME AND BIRD CONSERVATION

In New York and New England.--W. R. Dillon was in New York City, Boston, and Portland and Widows Island, Maine, during the week of November 5 in connection with matters relating to the inauguration of projects under allotments from the Public Works Administration.

Appointed Associate Naval Architect.--George A. Anthony, of Montclair, N. J., has been appointed associate naval architect in this Division. He will design a number of boats to be built with Public Works Administration funds and will supervise their construction. Mr. Anthony has had many years' experience in designing, constructing, and repairing boats, both for the War Department and for private concerns.

Game Protectors' Headquarters Changed.--The official headquarters of United States Game Protectors George M. Riddick and Lawrence J. Merovka were changed on November 15. Mr. Riddick is now located at Memphis, Tenn. (P.O. Box 493), and Mr. Merovka at New Orleans, La. (P.O. Box 15). For the present, Mr. Riddick's district will consist of both his and Mr. Merovka's former districts, with the exception of northern Louisiana. Mr. Merovka's new district will cover the State of Louisiana.

Appointed to Stenographic Position.--Miss Marie M. Fritsch, on December 1, was appointed to a stenographic position in this Division to assist in work pertaining to the Public Works program. She was previously employed in the office of the United States Engineer at New Orleans, La.

Transferred from Civil Service Commission.--Mrs. Virginia M. Smith was recently transferred from the United States Civil Service Commission to this Division to assist in stenographic work pertaining to the Public Works program.

Promoted to Fill Vacancy.--Miss Edna R. Beachley, of the reservations section has been promoted to the position vacated by Miss Margaret A. Roberts, who has been transferred to the Division of Land Acquisition, and Miss Wilma I. S. Aho has been transferred from the Veterans Administration to fill the position formerly held by Miss Beachley.

Fined for Hunting Ducks After Sunset.--United States Game Protector Fred Brint and State Warden Howard found 8 persons hunting wild ducks after sunset near Bono,

Iowa, on October 14. Mr. Howard arranged to try the offenders in State court. Two paid fines of \$29.80 each, and the cases of the others were continued.

Airplane Hunters' Fines Increased after Retrial.--Last fall Nebraska State officers apprehended two persons who were hunting wild ducks from an airplane. They were arraigned in the county court of Garden County, adjudged guilty, and each fined \$65 and costs. On defendant's petition, the cases were later transferred to the State district court for retrial. United States Game Protector Holmes cooperated with the State authorities in obtaining additional evidence, and the case was re-tried before a jury at Oshkosh, Nebr., on October 10. The defendants were found guilty and each was fined \$100 and costs of \$25.

Contraband Pelts Cost Defendant \$1,000.--For illegally possessing and transporting contraband bear pelts, a Petersburg, Alaska, boat builder on October 26 paid \$1,000 in fines after pleading guilty to two counts in the Federal District Court in Juneau and to three counts in the United States Commissioner's Court. He was fined \$200 on each count. According to Alaska Game Commissioner Hugh W. Terhune, the case resulted from the seizure of a shipment of nine bear skins in Seattle. The bears, the Government contended, had been killed in Alaska by a California party without hunting license or a guide and had been shipped from Petersburg in a conspiracy to evade the Alaska Game Law. At the instigation of Mr. Terhune, evidence in the case was obtained by Wardens Frank Defresne and Homer W. Jewell and by officials of the Department of Justice.

Mountain Sheep on Bison Range Have Recovered.--The outbreak of disease that ravaged the flock of mountain sheep at the National Bison Range, Mont., during the past summer seems to have subsided, and the flock is reported to be in good condition. During summer and early in the fall more than 60 rattlesnakes were killed on the Bison Range, one of the employees killing two with one shot. The albino buffalo calf continues to be a great attraction for visitors to this preserve.

Elk Return to Refuge.--The first elk to return to the Elk Refuge, Wyo., this autumn were seen on the upper portion of the Izaak Walton League Addition on the morning of October 16. Up to the first week in November little snow had fallen in the high mountains, and the bulk of the elk herd was still far back on the summer range.

Confers with Washington Officials.--H. W. Terhune, executive officer of the Alaska Game Commission, is in the Washington office conferring with officials and arranging for the construction of boats under the Public Works Program for the Alaska Game Commission.

Pet Antelopes Remain at the Charles Sheldon Refuge.--The two pet antelopes at the Charles Sheldon Wild Life Refuge, Nev., are being kept in the barn at night and watched closely during the day in order to keep them from going with the migrating herd. The pets at first had to be lured into the barn with candy, but after a month became accustomed to confinement and now wait at the barn door each evening for their ration of barley. They spend the day on the hillsides, two pet sheep trailing them everywhere.

Projects Begun Under the Public Works Program.--Under the Public Works program of the National Industrial Recovery Act, construction work for the improvement of refuges has been started on 14 projects--2 at the Niobrara Game Preserve, Nebr., for repairing buildings and constructing dams; 2 at Sullys Hill Game Preserve, N. Dak., for repairing and building roads and trails and erecting a machine shed; 2 at Wind Cave Game Preserve, S. Dak., for fencing and for constructing a corral for capturing buffalo and elk in the disposal of the surplus; 4 at the Bear River Migratory Bird Refuge, Utah, for building fences and roads and dressing and graveling dikes and beach lines; and 4 at the Elk Refuge, Wyo., for repairing buildings, fences, roads, and trails, constructing a telephone line, and preparing additional land for hay production. Instructions have been issued for beginning work on 2 projects at the National Bison Range, Mont., and plans and specifications have been completed for operations under 8 other projects on which actual work has not yet been started.

C.C.C. Camps Express Appreciation of Bureau Cooperation.--The Bureau has received a letter from Captain J. S. Dougherty, of the 34th Infantry, commanding officer of the C.C.C. camp on the Blackwater Migratory Bird Refuge, Md. (which has moved to another site), in which he expresses appreciation for the efforts of the Bureau's representative, Peter J. Van Huizen, in making the stay of the camp personnel as pleasant and profitable as possible, and for his cooperation in the conduct of the camp. Captain Dougherty says that Mr. Van Huizen is to be congratulated on the work he has accomplished, and particularly on the friendly attitude maintained between the C.C.C. members and the Bureau formmen.

United States Game Protector W. L. Birsch, of Elizabeth City, N. C., who was detailed to the Swanquarter Migratory Bird Reguge, N. C., to cooperate with the C.C.C. camp located there, resumed his regular duties on November 1. When leaving the Swanquarter refuge, he received the following letter: "We, the boys of Company 424, Civilian Conservation Camp, wish to express our deepest regrets as to your transfer from our and your camp. We feel that we are losing a friend who has been helpful to us in every way possible to make our camp one of the best and most pleasant in the country. You have cooperated with us in every way and stuck with us during the development of this camp. You have 'felt our feelings' and helped us win our battles, and you will always hold an open invatation to our camp at any time.--THE BOYS."

Beavers Released on Upper Mississippi Refuge.--Through the Wisconsin Department of Conservation, 10 beavers were obtained early in October from Brule River in north-ern Wisconsin and released on the Upper Mississippi River Wild Life and Fish Refuge. The area selected for this restocking is at the upper end of one of the pools to be created by the 9-foot channel development, but the resulting stage of water at that point is not expected to interfere seriously with these animals. The colony consisting of half a dozen or so adult beavers released in the refuge area opposite Wabasha, Minn., about five years ago have increased in numbers to such an extent that several separate colonies have been formed, aggregating more than 100 animals. Two new colonies were found recently.

Taking Rabbits and Minks Permitted on Upper Mississippi Refuge.--As a result of several years of protection afforded rabbits on the Upper Mississippi River Refuge, their numbers have increased to such a point that it seems desirable to allow public hunting of these animals on certain areas of the refuge during the open seasons this

fall and winter. No hunting, however, will be permitted on the inviolate sanctuaries. Trapping of minks on certain areas of the refuge during the open seasons is also being allowed under permits issued by the superintendent.

Needy Permitted to Cut Timber on Refuge.--Since it is practically certain that much timber on the Upper Mississippi River Refuge must eventually be removed before inundation takes place in connection with the 9-foot channel project of the War Department, the Bureau recently decided to authorize the superintendent to issue permits to persons in need, allowing them to cut such timber for fuel for domestic use. The cutting of timber is being permitted only at the lower ends of proposed pools, where the water will be deepest. No cutting is being permitted on the higher ridges, which will not be submerged, and under no circumstances is oak cutting permitted. Local relief agencies in the several towns and communities along the river are co-operating in this project by endorsing applicants for such free permits. To be eligible, the applicant must be in need of fuel for domestic use and without means with which to procure it otherwise. Counties and municipalities are cooperating by lending motor trucks and other equipment to permittees for cutting and hauling the wood to their homes. Making such timber available for the use of the poor has received very favorable local comment. In the La Crosse area alone more than 300 permits were issued in 10 days.

Game-Law Violators Sentenced.--Several cases involving game-law violations on the Upper Mississippi River Refuge were recently terminated in State courts, the defendants receiving the following sentences: For trapping muskrats in close season, 30 days in jail; for shooting a beaver (the defendant claiming it was done inadvertently, a fine and costs aggregating \$60; for hunting without a license, a fine and costs totaling \$30. For illegal possession of muskrat pelts, one defendant was fined \$50 and costs, and in default thereof was sentenced to 40 days in jail, and another because of his youth was discharged after being reprimanded by the court. Three Federal cases, two involving the possession of wild ducks, and one hunting after sunset, were recently obtained by refuge rangers.

Fires Damage Upper Mississippi Refuge.--A number of serious fires occurred during October on the Upper Mississippi River Refuge, particularly in the Rice Lake area north of La Crosse. On two occasions members of the staff of the Winona office joined with the district ranger and his deputies in bringing the fires under control. In one instance the crews worked from midnight until dawn before the fire, which burned over about 1,000 acres of valuable game cover, could be extinguished. With the exceedingly low stage of water prevailing, most of the pot holes and similar sources of water for use in fighting fires were dry, and the refuge tank truck was used to great advantage.

Valley Quail Imported from Mexico.--Permits were issued during November for the importation of 40,000 valley quail from Mexico for the California Fish and Game Commission. The first shipment of 5,000 was due on November 5, and it is expected that the total number will be received in several shipments before January 1. It is understood, according to information from the commission, that none of these birds will be released in open shooting country, but only on game refuges where they will have an opportunity to reproduce before being subjected to hunting.

Inspector to Collect Specimens in Panama.--Mrs. M. E. Davidson, one of the Bureau inspectors of foreign birds and mammals at San Francisco, Calif., is leaving for Panama to collect natural-history specimens for the California Academy of Sciences. For the present she will be located in Boquete, Chiriqui Province, Panama.

Japanese and West African Birds Imported.--Among the more interesting birds brought in during November were 6 spur-winged geese (Plectropterus gambensis) from Portuguese West Africa and 3 owl finches (Sticloptera bechenovii), 3 painted quail (Excalfactoria chinensis), and 96 button quail (Turnix sp.) from Japan.

Australian Birds Imported.--Two Australian ducks (Anas superciliosa) and two maned geese (Chenonetta jubata) arrived at San Francisco from Sydney, Australia, on November 23.

South American Wolf Imported.--A maned wolf (Chrysocyon jubata) was imported at New York on November 21 from Santos, Brazil, and acquired by the National Zoological Park. This animal inhabits the open pampas of South America and is described as being more closely related to the gray fox than to the wolf. It is long legged and is an extremely fast runner. It is exceedingly rare in collections, and is reported by Zoological Park officials as doing well in captivity.

Christmas-Bird Importations Decrease.--There has been a noticeable decrease in the number of birds imported for the Christmas trade this year, especially in canaries. The total number of canaries imported between November 15 and December 10 was only about 31,000, while last year during the same period about 51,000 were entered, and in 1931 entries of canaries during the three weeks prior to Christmas averaged about 2,500 a day.

